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ABSTRACT

This packet contains 15 lessons developed in a workplace basic skills project for the metal casting industry established jointly by Central Alabama Community College and Robinson Foundry, Inc. The lessons cover the following topics: (1) green sand schedule; (2) the core room; (3) the core room (continued); (4) figuring time; (5) the cleaning room; (6) the EPS (Evaporated Polystyrene System) process; (7) green sand; (8) EPS-1; (9) EPS-2; (10) grinding production sheet; (11) building and grounds; (12) molding production sheet; (13) forms; (14) grinding production sheet; and (15) vocabulary. Lessons contain information sheets, vocabulary (in some cases), technical information particular to the Robinson Foundry, pretests/posttests with answers, and learning activities for each of the factory processes covered in the lessons. (KC)

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Central Alabama Community College
&
Robinson Foundry, Inc.

1992

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A National Workplace Literacy Project
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A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

Robert E. Stone,
Project Director

LESSON I
GREEN SAND SCHEDULE

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In the following lesson on the **Green Sand Schedule** you will learn how to read and understand the schedule of job orders used throughout the Foundry.

First, take the quiz on the next 2 pages to see what you already know.

2.

QUIZ 1

Using the schedule on p. 3, circle the answers you think are correct.

The first one is done for you.

1. How many jobs are scheduled for Floor 3&4?

[✓ a. 7]
b. 20
c. 2

2. How many molds should be made for the 1st job on Floor 9&10?

a. 25
b. 184
c. 95

3. What is the flask size for the 1st job on Floor 9&10?

a. 25x30
b. 22x22
c. 30x30

4. What is the class of iron for the 1st job on Floor 5&6?

a. 20-s
b. 25
c. 90

5. What is the casting number for the 1st job on the Hunter?

a. 121-0035
b. 300
c. 20-s

6. How do you know that a job is a Hot Job?

a. the square has an x through it
b. the square has a star ★ in it
c. the square is first on the chart

7. How many jobs are scheduled for the HUNTER?

a. 8
b. 25
c. 31

3.

DAY: Wednesday "135" DATE: 5-15-91 SHIFT:

HUNTER	1 20S Tosh 300 [C] 121-0035	2 30A KV 55 [C] 40162P	3 25 SI 275 [SO] [C] 901505	~~30B Delco~~ ~~35~~ ~~64997076~~	5 30A Delco 10 65351401	6 25 CE 25 77IC.9280E	7 25 SI 250 [SO] [C] 901504	8 25 S+B 250 R-153-E	9	10
BP	1 ~~30B M+M~~ ~~350 [C]~~ ~~300333~~	2 25 SI 35 810207	3 25 LGP 20 C-114000	4 25 CE 100 359841	5 25 CE 125 402249	6 25 SI 15 [SO] 718273	7	11 30B Delco 125 62803049	12	13
1 & 2	1 30A Delco [C] 25 x 30 63197774	2 30A Delco 15 [C] 30 x 30 65362439	3 20S Tosh 35 [C] 32 x 41 121-0020-10	4 x	5 30B CE 75 [SO] 30 x 30 405925	6 30B GE 50 [C] 30 x 30 F-3803	30B CE 75 [SO] [C] 32 x 41 406115	14	15	16
9 & 10	1 25 B 95 22 x 22 10EP1200	2 20S Tosh 184 [C] 25 x 30 121-0026	3 30A Delco 15 [C] 22 x 22 64445252	4 25 CE 45 [C] 25 x 30 316459	5 25 SU 10 [SO] [C] 25 x 30 9524	6 x	7 x	17 ~~30B Delco~~ ~~25~~ ~~62803049~~	18	19
3 & 4	1 20S Tosh 400 [C] 30 x 20 121-0002	2 25 BE 45 [C] 25 x 25 095F1201	3 25 SU 10 [C] ☆ 25 x 36 32310	4 25 SU 305 [C] 25 x 36 32023	5 25 CE 35 [C] 30 x 24 308134	6 ☆ 25 SU 10 [C] 25 x 36 32410	7 30A SI 10 Smp Q. [C] 30 x 30 905870	20 ~~30B Delco~~ ~~400 [C]~~ ~~63194010~~	21	22
5 & 6	1 25 VnL 90 30 x 36 262015004	2 30A Delco 15 30 x 30 62803848	3 30A CE 30 30 x 30 346036	4 30A CE 25 30 x 30 346038	5 30A CE 10 30 x 30 346047	6 25 CE 10 30 x 30 346058	7 25 BE 7 [C] 25 x 36 HR6307	23	24	25

NOTES: 718273 - Squeeze
901505 - Surface Finish Critical
901504 - " " " 406115 Check for warp
9524 - Corco Need Gluing

10

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Most trainees don't know all the answers to the quiz you've just taken, but after you work through the lesson on the following pages, you'll know a lot more about the Green Sand Schedule.

At the end of the lesson you'll take the quiz again, and see your scores for both times.

6.

LESSON

On the opposite page is a Green Sand Schedule for the 1st and 2nd shifts, Monday, May 6, 1991. Study the green areas.

In '5/6/91" the '5' means the fifth month, or May.
The '6' means the 6th day, or May 6.
And the last part of '5/6/91' means the year 1991.

7.

DAY: Monday DATE: 5-6-91 126 SHIFT: 1st + 2nd

HUNTER	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	8 [ ] [ ]	9 [ ] [ ]	10 [ ] [ ]
BP	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	11 [ ] [ ]	12 [ ] [ ]	13 [ ] [ ]
1 & 2	1 [ ] [ ] ___x___	2 [ ] [ ] ___x___	3 [ ] [ ] ___x___	4 [ ] [ ] ___x___	5 [ ] [ ] ___x___	6 [ ] [ ] ___x___	7 [ ] [ ] ___x___	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
3 & 4	1 [ ] [ ] ___x___	2 [ ] [ ] ___x___	3 [ ] [ ] ___x___	4 [ ] [ ] ___x___	5 [ ] [ ] ___x___	6 [ ] [ ] ___x___	7 [ ] [ ] ___x___	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
5 & 6	1 [ ] [ ] ___x___	2 [ ] [ ] ___x___	3 [ ] [ ] ___x___	4 [ ] [ ] ___x___	5 [ ] [ ] ___x___	6 [ ] [ ] ___x___	7 [ ] [ ] ___x___	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
9 & 10	1 [ ] [ ] ___x___	2 [ ] [ ] ___x___	3 [ ] [ ] ___x___	4 [ ] [ ] ___x___	5 [ ] [ ] ___x___	6 [ ] [ ] ___x___	7 [ ] [ ] ___x___	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES:

8.

Each day Nancy Sewell, Production Manager at Robinson, fills in the work for that day. Customers send their orders on an OPOS (Open Purchase Order Status), and Nancy studies the orders and then fills in the Green Sand Schedule.

DAY: *Monday* DATE: *5-6-91* *126* SHIFT: *1st & 2nd*

HUNTER	1 25 51 475 [ ] [ ] 817046	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	8 [ ] [ ]	9 [ ] [ ]	10 [ ] [ ]
BP	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	11 [ ] [ ]	12 [ ] [ ]	13 [ ] [ ]
1 & 2	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
3 & 4	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
5 & 6	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
9 & 10	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES:

10.

Copies of the day's schedule go to the following departments:

Core Room
Pattern Set-up
Pallet Line
Cleaning Room
Quality Control

12.

The schedule is a chart that shows all the work to be run, together with where jobs will be run.

DAY: Wednesday "135" DATE: 5-15-91 13.

SHIFT:

HUNTER	1 20S Tosh 300 [ ] [C] 121-0035	2 30A KV 55 [ ] [C] 40162P	3 25 SI 225 [50] [C] 901505	4 ~~30B Delco~~ ~~35~~ [ ] [ ] ~~64997016~~	5 30A Delco 10 [ ] [ ] 65351401	6 25 CE 25 [ ] [ ] 791C-9280E	7 25 SI 250 [50] [C] 901504	8 25 S&B 250 [ ] [ ] R-153-E	9 [ ] [ ]	10
BP	1 ~~30B M+M~~ ~~250~~ [ ] [C] ~~300333~~	2 25 SI 35 [ ] [ ] 810207	3 25 LGP 20 [ ] [ ] C-114000	4 25 CE 100 [ ] [ ] 354841	5 25 CE 125 [ ] [ ] 402249	6 25 SI 15 [50] [ ] 718273	7 [ ] [ ]	11 30B Delco 125 [ ] [ ] 62803049	12 [ ] [ ]	13
1 & 2	1 30A Delco [ ] [C] 25 × 30 63191224	2 30A Delco 15 [ ] [C] 30 × 30 65363439	3 20S Tosh 35 [ ] [C] 32 × 41 121-0020-10	4 [ ] [ ] x	5 30B CE 75 [50] [ ] 30 × 30 405925	6 30B GE 50 [ ] [C] 30 × 30 F-3803	30B CE 75 [50] [C] 32 × 41 406115	14 [ ] [ ]	15 [ ] [ ]	16
9 & 10	1 25 B 95 [ ] [ ] 22 × 22 10EP1200	2 20S Tosh 184 [ ] [C] 25 × 30 121-0026	3 30A Delco 15 [ ] [C] 22 × 22 64445252	4 25 CE 45 [ ] [C] 25 × 30 316459	5 25 SY 10 [50] [C] 25 × 30 9524	6 [ ] [ ] x	7 [ ] [ ] x	17 ~~30B Delco~~ ~~125~~ [ ] [ ] ~~62803049~~	18 [ ] [ ]	19
3 & 4	1 20S Tosh 400 [ ] [C] 30 × 20 121-0002	2 25 BE 45 [ ] [C] 25 × 25 095E1201	3 25 SY 10 [ ] [C] A 25 × 36 32310	4 25 SY 305 [ ] [C] 25 × 36 32023	5 25 CE 35 [ ] [C] 30 × 24 308134	6 25 SY 10 [ ] [C] A 25 × 36 32410	7 30A SI 10 Samp Q [C] 30 × 30 905870	20 ~~30B Delco~~ ~~400~~ [ ] [C] ~~63194010~~	21 [ ] [ ]	22
5 & 6	1 25 VuL 90 [ ] [ ] 30 × 36 262015004	2 30A Delco 15 [ ] [ ] 30 × 30 62803848	3 30A CE 30 [ ] [ ] 30 × 30 346036	4 30A CE 25 [ ] [ ] 30 × 30 346038	5 30A CE 10 [ ] [ ] 30 × 30 346047	6 25 CE 10 [ ] [ ] 30 × 30 346058	7 25 BE 7 [ ] [C] 25 × 36 HB6307	23 [ ] [ ]	24 [ ] [ ]	25

NOTES: 718273 - Squeeze
901505 - Surface Finish Critical
901504 - " " " 406115 Check for warp
9524 - Cerco Mud Gluing

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14.

Once you know how to use it, a glance at the schedule will tell you what jobs have to be done that day, and in what order.

DAY: Wednesday "135" DATE: 5-15-91 15. SHIFT:

HUNTER	1 20S Tosh (300) [ ] [C] 121-0035	2 30A KV (55) [ ] [C] 40162P	3 25 SI (225) [50] [C] 901505	~~4 30B Delco (35) [ ] [ ] 64997016~~	5 30A Delco (10) [ ] [ ] 65351401	6 25 CE (25) [ ] [ ] [illegible]	7 25 SI (250) [50] [C] 901504	8 25 J&B (250) [ ] [ ] R-153-E	9 ( ) [ ] [ ]	10 ( ) [ ]
BP	~~1 30B M+H (350) [ ] [C] 300333~~	2 25 SI (35) [ ] [ ] S10207	3 25 LGP (20) [ ] [ ] C-114000	4 25 CE (100) [ ] [ ] 359841	5 25 CE (125) [ ] [ ] 402249	6 25 SI (15) [50] [ ] 718273	7 ( ) [ ]	11 30B Delco (125) [ ] [ ] 62803049	12 ( ) [ ] [ ]	13 ( ) [ ]
1 & 2	1 30A Delco ( ) [ ] [C] 25 x 30 63197774	2 30A Delco (15) [ ] [C] 30 x 30 65363439	3 20S TOSH (35) [ ] [C] 32 x 41 121-0020-10	4 ( ) [ ] x	5 30B CE (75) [50] [ ] 30 x 30 405925	6 30B GE (50) [ ] [C] 30 x 30 F-3803	7 30B CE (75) [50] [C] 32 x 41 406115	14 ( ) [ ] [ ]	15 ( ) [ ] [ ]	16 ( ) [ ]
9 & 10	1 25 B (95) [ ] [ ] 22 x 22 10EP1200	2 20S Tosh (184) [ ] [C] 25 x 30 121-0026	3 30A Delco (15) [ ] [C] 22 x 22 64445232	4 25 CE (45) [ ] [C] 25 x 30 316459	5 25 SU (10) [50] [C] 25 x 30 9524	6 ( ) [ ] [ ] x	7 ( ) [ ] [ ] x	~~17 30B Delco (125) [ ] [ ] 62803049~~	18 ( ) [ ] [ ]	19 ( ) [ ]
3 & 4	1 20S Tosh (400) [ ] [C] 30 x 20 121-0002	2 25 BE (45) [ ] [C] 25 x 25 09SE1201	3 25 SU (10) [ ] [C] * 25 x 36 32310	4 25 SU (30 Samp) [ ] [C] 25 x 36 32023	5 25 CE (35) [ ] [C] * 20 x 24 308134	6 25 SU (10) [ ] [C] 25 x 36 32410	7 30A SI (10) Samp Q [C] 30 x 30 905870	~~20 30B Delco (480) [ ] [C] 63194010~~	21 ( ) [ ] [ ]	22 ( ) [ ]
5 & 6	1 25 VnL (90) [ ] [ ] 30 x 36 262015004	2 30A Delco (15) [ ] [ ] 30 x 30 62803848	3 30A CE (30) [ ] [ ] 30 x 30 346036	4 30A CE (25) [ ] [ ] 30 x 30 346038	5 30A CE (10) [ ] [ ] 30 x 30 346047	6 25 CE (10) [ ] [ ] 30 x 30 346058	7 25 BE (7) [ ] [C] 25 x 36 HA6307	23 ( ) [ ] [ ]	24 ( ) [ ] [ ]	25 ( ) [ ]

NOTES: 718273 - Squeeze
901505 - Surface Finish Critical
901504 - " " " 406115 Check for warp
9524 - Cerco Nut Gluing

16.

The day is Monday.
The date is June 5, 1991.
The shifts are 1st and 2nd.

What does the number '126' mean? It means that it is the one-hundred-twenty-sixth day of the year.

DAY: Monday DATE: 5-6-91 126 SHIFT: 1st + 2nd

HUNTER	1 ○ [ ] [ ]	2 ○ [ ] [ ]	3 ○ [ ] [ ]	4 ○ [ ] [ ]	5 ○ [ ] [ ]	6 ○ [ ] [ ]	7 ○ [ ] [ ]	8 ○ [ ] [ ]	9 ○ [ ] [ ]	10 ○ [ ] [ ]
BP	1 ○ [ ] [ ]	2 ○ [ ] [ ]	3 ○ [ ] [ ]	4 ○ [ ] [ ]	5 ○ [ ] [ ]	6 ○ [ ] [ ]	7 ○ [ ] [ ]	11 ○ [ ] [ ]	12 ○ [ ] [ ]	13 ○ [ ] [ ]
1 & 2	1 ○ [ ] [ ] ___x___	2 ○ [ ] [ ] ___x___	3 ○ [ ] [ ] ___x___	4 ○ [ ] [ ] ___x___	5 ○ [ ] [ ] ___x___	6 ○ [ ] [ ] ___x___	7 ○ [ ] [ ] ___x___	14 ○ [ ] [ ]	15 ○ [ ] [ ]	16 ○ [ ] [ ]
3 & 4	1 ○ [ ] [ ] ___x___	2 ○ [ ] [ ] ___x___	3 ○ [ ] [ ] ___x___	4 ○ [ ] [ ] ___x___	5 ○ [ ] [ ] ___x___	6 ○ [ ] [ ] ___x___	7 ○ [ ] [ ] ___x___	17 ○ [ ] [ ]	18 ○ [ ] [ ]	19 ○ [ ] [ ]
5 & 6	1 ○ [ ] [ ] ___x___	2 ○ [ ] [ ] ___x___	3 ○ [ ] [ ] ___x___	4 ○ [ ] [ ] ___x___	5 ○ [ ] [ ] ___x___	6 ○ [ ] [ ] ___x___	7 ○ [ ] [ ] ___x___	20 ○ [ ] [ ]	21 ○ [ ] [ ]	22 ○ [ ] [ ]
9 & 10	1 ○ [ ] [ ] ___x___	2 ○ [ ] [ ] ___x___	3 ○ [ ] [ ] ___x___	4 ○ [ ] [ ] ___x___	5 ○ [ ] [ ] ___x___	6 ○ [ ] [ ] ___x___	7 ○ [ ] [ ] ___x___	23 ○ [ ] [ ]	24 ○ [ ] [ ]	25 ○ [ ] [ ]

NOTES:

18.

On January 8th of next year, the top line will read differently.

The day is Friday.
The date is January 8, 1993.
It is the 8thth day of the year.
The shifts are 1st and 2nd.

19.

DAY: Friday DATE: 1-8-93 8 SHIFT: 1st + 2nd

HUNTER	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	8 [ ] [ ]	9 [ ] [ ]	10 [ ] [ ]
BP	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	11 [ ] [ ]	12 [ ] [ ]	13 [ ] [ ]
1 & 2	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
3 & 4	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
5 & 6	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
9 & 10	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES:

20.

Castings poured on January 8 will have the number '8' on them, alongside the pattern number.
(Every casting poured on June 6 had the number '126' put alongside the pattern number.)

21.

DAY: Friday DATE: 1-8-93 8 SHIFT: 1st & 2nd

HUNTER	1 ○ [ ] [ ]	2 ○ [ ] [ ]	3 ○ [ ] [ ]	4 ○ [ ] [ ]	5 ○ [ ] [ ]	6 ○ [ ] [ ]	7 ○ [ ] [ ]	8 ○ [ ] [ ]	9 ○ [ ] [ ]	10 ○ [ ] [ ]
BP	1 ○ [ ] [ ]	2 ○ [ ] [ ]	3 ○ [ ] [ ]	4 ○ [ ] [ ]	5 ○ [ ] [ ]	6 ○ [ ] [ ]	7 ○ [ ] [ ]	11 ○ [ ] [ ]	12 ○ [ ] [ ]	13 ○ [ ] [ ]
1 & 2	1 ○ [ ] [ ] x	2 ○ [ ] [ ] x	3 ○ [ ] [ ] x	4 ○ [ ] [ ] x	5 ○ [ ] [ ] x	6 ○ [ ] [ ] x	7 ○ [ ] [ ] x	14 ○ [ ] [ ]	15 ○ [ ] [ ]	16 ○ [ ] [ ]
3 & 4	1 ○ [ ] [ ] x	2 ○ [ ] [ ] x	3 ○ [ ] [ ] x	4 ○ [ ] [ ] x	5 ○ [ ] [ ] x	6 ○ [ ] [ ] x	7 ○ [ ] [ ] x	17 ○ [ ] [ ]	18 ○ [ ] [ ]	19 ○ [ ] [ ]
5 & 6	1 ○ [ ] [ ] x	2 ○ [ ] [ ] x	3 ○ [ ] [ ] x	4 ○ [ ] [ ] x	5 ○ [ ] [ ] x	6 ○ [ ] [ ] x	7 ○ [ ] [ ] x	20 ○ [ ] [ ]	21 ○ [ ] [ ]	22 ○ [ ] [ ]
9 & 10	1 ○ [ ] [ ] x	2 ○ [ ] [ ] x	3 ○ [ ] [ ] x	4 ○ [ ] [ ] x	5 ○ [ ] [ ] x	6 ○ [ ] [ ] x	7 ○ [ ] [ ] x	23 ○ [ ] [ ]	24 ○ [ ] [ ]	25 ○ [ ] [ ]

NOTES:

22.

Nancy Sewell writes the day, date, and shift information on the schedule form. She does not have to fill in the molding machines and sections of the the Pallet Line. That information is printed on the blank schedule, making a column down the lefthand side.

DAY: DATE: SHIFT:

H U N T E R	1 ___ ○ [ ] [ ]	2 ___ ○ [ ] [ ]	3 ___ ○ [ ] [ ]	4 ___ ○ [ ] [ ]	5 ___ ○ [ ] [ ]	6 ___ ○ [ ] [ ]	7 ___ ○ [ ] [ ]	8 ___ ○ [ ] [ ]	9 ___ ○ [ ] [ ]	10 ___ ○ [ ] [ ]
B P	1 ___ ○ [ ] [ ]	2 ___ ○ [ ] [ ]	3 ___ ○ [ ] [ ]	4 ___ ○ [ ] [ ]	5 ___ ○ [ ] [ ]	6 ___ ○ [ ] [ ]	7 ___ ○ [ ] [ ]	11 ___ ○ [ ] [ ]	12 ___ ○ [ ] [ ]	13 ___ ○ [ ] [ ]
1 & 2	1 ___ ○ [ ] [ ] ___x___	2 ___ ○ [ ] [ ] ___x___	3 ___ ○ [ ] [ ] ___x___	4 ___ ○ [ ] [ ] ___x___	5 ___ ○ [ ] [ ] ___x___	6 ___ ○ [ ] [ ] ___x___	7 ___ ○ [ ] [ ] ___x___	14 ___ ○ [ ] [ ]	15 ___ ○ [ ] [ ]	16 ___ ○ [ ] [ ]
3 & 4	1 ___ ○ [ ] [ ] ___x___	2 ___ ○ [ ] [ ] ___x___	3 ___ ○ [ ] [ ] ___x___	4 ___ ○ [ ] [ ] ___x___	5 ___ ○ [ ] [ ] ___x___	6 ___ ○ [ ] [ ] ___x___	7 ___ ○ [ ] [ ] ___x___	17 ___ ○ [ ] [ ]	18 ___ ○ [ ] [ ]	19 ___ ○ [ ] [ ]
5 & 6	1 ___ ○ [ ] [ ] ___x___	2 ___ ○ [ ] [ ] ___x___	3 ___ ○ [ ] [ ] ___x___	4 ___ ○ [ ] [ ] ___x___	5 ___ ○ [ ] [ ] ___x___	6 ___ ○ [ ] [ ] ___x___	7 ___ ○ [ ] [ ] ___x___	20 ___ ○ [ ] [ ]	21 ___ ○ [ ] [ ]	22 ___ ○ [ ] [ ]
9 & 10	1 ___ ○ [ ] [ ] ___x___	2 ___ ○ [ ] [ ] ___x___	3 ___ ○ [ ] [ ] ___x___	4 ___ ○ [ ] [ ] ___x___	5 ___ ○ [ ] [ ] ___x___	6 ___ ○ [ ] [ ] ___x___	7 ___ ○ [ ] [ ] ___x___	23 ___ ○ [ ] [ ]	24 ___ ○ [ ] [ ]	25 ___ ○ [ ] [ ]

NOTES:

24.

The work for Pallet Lines 9 & 10 is in the bottom row of boxes.

25.

DAY: Monday DATE: 5-6-91 126 SHIFT: 1st + 2nd

HUNTER	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4. [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	8 [ ] [ ]	9 [ ] [ ]	10 [ ] [ ]
BP	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	11 [ ] [ ]	12 [ ] [ ]	13 [ ] [ ]
1 & 2	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
3 & 4	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
5 & 6	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
9 & 10	1 25 SM 20 [ ] [C] 25 x 30 9804	2 30B Watts 301 [ ] [C] 25 x 30 3099-30	3 30A Deko 65 [ ] [ ] 25 x 25 63194381	4 30A Deko 75 [ ] [ ] 25 x 25 65525083	5 30A Deko 50 [ ] [ ] 22 x 22 64948230	6 25 BE 65 [ ] [ ] 22 x 22 10EP1200	7 [ ] [ ] x	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES:

51

52

26.

The job squares for Pallet Lines 3&4 are filled in on this schedule.

The jo job farthest to the left -- number 1 -- will be done first, then the others, in order.

The Green Sand Schedule has 7 job squares for Pallet Lines 3&4, but only 4 jobs are filled in here.

DAY: *Monday* DATE: 5-6-91 126 SHIFT: 1st + 2nd

HUNTER	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	8 [ ] [ ]	9 [ ] [ ]	10 [ ] [ ]
BP	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	11 [ ] [ ]	12 [ ] [ ]	13 [ ] [ ]
1 & 2	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
3 & 4	1 30A CE 65 [ ] [C] 30 x 30 240551-02	2 25 SM 35 [ ] [C] 2 x 36 32401	3 25 BE 35 [ ] [C] 25 x 25 095F1200	4 25 SU 5 [ ] [C] 25 x 36 32210	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
5 & 6	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
9 & 10	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES:

28.

The HUNTER can do up to 25 jobs, so all the last three columns are used for Hunter jobs.

Thirteen of the Hunter's job squares are filled in on this day.

DAY: Monday DATE: 5-6-91 126 SHIFT: 1st + 2nd

HUNTER	1 25 SI 475 [ ] [ ] 817046	2 25 CE 90 [ ] [ ] 314015	3 25 VUL 200 [ ] [ ] 212016B	4 30A Delco 450 [ ] [ ] 63194010	5 30B Delco 75 [ ] [ ] 64997016	6 25 SI 150 [ ] [C] 904393	7 25 BE 50 [ ] [ ] 09EP1500	8 25 GE 50 [ ] [ ] 36B550349AC	9 25 SU 25 [ ] [C] 34012	10 30B M+H 35 [ ] [ ] 474020
BP	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	11 25 SU 50 [ ] [C] 34002	12 25 BE 50 [ ] [ ] 09EP1500	13 25 CE 135 [ ] [C] 354272
1 & 2	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
3 & 4	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
5 & 6	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
9 & 10	1 [ ] [ ] x	2 [ ] [ ] x	3 [ ] [ ] x	4 [ ] [ ] x	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES:

30.

If you check the Green Sand Schedule once in awhile throughout your shift, you'll notice when jobs are moved ahead.

On this schedule a job has been moved. Now it is to be done before the jobs in squares '4' and '5'.

31.

DAY: Wednesday "135" DATE: 5-15-91 SHIFT: 1st + 2nd

HUNTER	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	8 [ ] [ ]	9 [ ] [ ]	10 [ ] [ ]
BP	1 [ ] [ ]	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 [ ] [ ]	11 [ ] [ ]	12 [ ] [ ]	13 [ ] [ ]
1 & 2	1 [ ] [ ] ___ x ___	2 [ ] [ ] ___ x ___	3 [ ] [ ] ___ x ___	4 [ ] [ ] ___ x ___	5 [ ] [ ] ___ x ___	6 [ ] [ ] ___ x ___	7 [ ] [ ] ___ x ___	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
3 & 4	1 205 TOSH 400 [ ] [C] 30 x 30	2 25 BE 45 [ ] [C] 25 x 25 095F1201	3 25 SU 10 [ ] [C] ★ 25 x 36 32310	4 25 SU 305 [ ] [ ] 25 x 36 32023	5 25 GE 35 [ ] [C] 20 x 24 308134	6 25 SM 10 [ ] [C] ★ 25 x 36 32410	7 30A SI 10 Scrap [ ] [C] 30 x 30 405870	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
5 & 6	1 [ ] [ ] ___ x ___	2 [ ] [ ] ___ x ___	3 [ ] [ ] ___ x ___	4 [ ] [ ] ___ x ___	5 [ ] [ ] ___ x ___	6 [ ] [ ] ___ x ___	7 [ ] [ ] ___ x ___	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
9 & 10	1 [ ] [ ] ___ x ___	2 [ ] [ ] ___ x ___	3 [ ] [ ] ___ x ___	4 [ ] [ ] ___ x ___	5 [ ] [ ] ___ x ___	6 [ ] [ ] ___ x ___	7 [ ] [ ] ___ x ___	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES:

63

C4

32.

A starred* job is a HOT JOB and has to be done as quickly as possible.

DAY: Wednesday "135" DATE: 5-15-91

SHIFT:

HUNTER	1 20S Tosh 300 [ ] [C] 121-0035	2 30A KV 55 [ ] [C] 40162P	3 25 SI 225 [SO] [C] 901505	~~4 30A Delco 75 [ ] [ ] 64997076~~	5 30A Delco 10 [ ] [ ] 65351401	6 25 CE 25 [ ] [ ] [illegible]	7 25 SI 250 [SO] [C] 901504	8 25 S+B 250 [ ] [ ] R-153-E	9 [ ] [ ]	10
BP	~~1 30A B+H 250 [ ] [C] 300333~~	2 25 SI 35 [ ] [ ] S10207	3 25 LGP 20 [ ] [ ] C-114000	4 25 CE 100 [ ] [ ] 359841	5 25 CE 125 [ ] [ ] 402349	6 25 SI 15 [SO] [ ] 718273	7 [ ] [ ]	11 30B Delco 125 [ ] [ ] 62803049	12 [ ] [ ]	13
1 & 2	1 30A Delco [ ] [C] 25 x 30 63199224	2 30A Delco 15 [ ] [C] 30 x 30 65312439	3 20S Tosh 35 [ ] [C] 32 x 41 121-0020-10	4 [ ] x	5 30B CE 75 [SO] [ ] 30 x 30 405925	6 30B GE 50 [ ] [C] 30 x 30 F-3803	30B CE 75 [SO] [C] 32 x 41 406115	14 [ ] [ ]	15 [ ] [ ]	16
9 & 10	1 25 B 95 [ ] [ ] 22 x 22 10EP1300	2 20S Tosh 184 [ ] [C] 25 x 30 121-0026	3 30A Delco 15 [ ] [C] 22 x 22 64445252	4 25 CE 45 [ ] [C] 25 x 30 316459	5 25 SU 10 [SO] [C] 25 x 30 9524	6 [ ] [ ] x	7 [ ] [ ] x	~~17 30B Delco 125 [ ] [ ] 62803049~~	18 [ ] [ ]	19
3 & 4	1 20S Tosh 400 [ ] [C] 30 20 121-0002	2 25 BE 15 [ ] [C] 25 x 25 095E1201	3 25 SU 10 [ ] [C] ★ 25 x 36 32310	4 25 SU 30 Smp [ ] [C] 25 x 36 32023	5 25 CE 35 [ ] [C] 30 x 24 308134	6 25 SU ★ 10 [ ] [C] 25 x 36 32410	7 30A SI 10 Smp Q. [C] 30 x 30 905870	~~30B Delco 400 [ ] [C] 63194010~~	21 [ ] [ ]	22
5 & 6	1 25 VnL 90 [ ] [ ] 30 x 36 262015004	2 30A Delco 15 [ ] [ ] 30 x 30 62803848	3 30A CE 30 [ ] [ ] 30 x 30 346036	4 30A CE 25 [ ] [ ] 30 x 30 346038	5 30A CE 10 [ ] [ ] 30 x 30 346047	6 25 CE 10 [ ] [ ] 30 x 30 346058	7 25 BE 7 [ ] [C] 25 x 36 H116707	23 [ ] [ ]	24 [ ] [ ]	25

NOTES: 718273 - Squeeze

901505 = Sulfree Finish Critical

901504 - " " " 406115 Check for warp

9524 - Cerco Mud Gluing

[illegible]

68

BEST COPY AVAILABLE

You can tell the CLASS OF IRON to be poured for all the jobs.

20-s	softest iron
25	regular iron
30-A	25 class plus 10 lbs steel
30-B (35)	strongest iron

The HUNTER's first job uses regular iron, while the third job for Pallet Line 1& 2 uses the strongest iron

35.

DAY: Monday DATE: 5-6-91 126 SHIFT: 1st & 2nd

HUNTER	1 25 SI 475 [✓] 817046	2 25 CE 90 214015	3 25 VuL 200 212016B	4 31A Delco 450 63194010	5 30B Delco 75 64997011	6 25 SI 150 [C] 904393	7 25 BE 50 09EP1500	8 25 GE 50 3665523494AC	9 25 SU 25 [C] 34017	10 30B M+I 35 474020
BP	1 DOWN	2	3	4	5	6	7 ~~25 BE~~ ~~50~~ ~~09EP1500~~	11 25 SU 50 [C] 34002	12 25 BE 50 09EP1500	13 25 CE 135 [C] 354278
1 & 2	1 25 SI 20 [✓] [c] 25 x 30 901623	2 30A Delco 225 [c] 25 x 30 63196008	3 30B CE 73 [50] 30 x 30 405925	4 30A SI 100 [c] 30 x 30 904357	5 x	6 x	7 x	14	15	16
9 & 10	1 25 SM 20 [✓] [c] 25 x 30 9804	2 30B Watt 301 [c] 25 x 30 3099-30	3 30A Delco 65 25 x 25 63194381	4 32A Delco 75 25 x 25 65525083	5 30A Delco 50 22 x 22 64948230	6 25 BE 65 22 x 22 10EP1200	7 x	17	18	19
3 & 4	1 30A CE 65 [✓] [c] 30 x 30 240551-02	2 25 SM 35 [c] 25 x 36 32401	3 25 BE 35 [c] 25 x 25 09SF1200	4 25 SU 5 [c] 25 x 36 32210	5 x	6 x	7 x	20	21	22
5 & 6	1 ~~25 BE~~ ~~5~~ ~~30 x 30~~ 16EP1704	2 25 BE 75 [✓] 30 x 30 18FH1001	3 25 BE 20 [c] 25 x 36 HA6307	4 25 SU 45 [c] 20 x 30 33112	5 x	6 x	7 x	23	24	25

NOTES: 405925 - BHN 187-241 - Check for Warp.

71

72

36.

The CUSTOMER NAME is abbreviated. For instance, 'VUL' is short for Vulcan, and 'SI' is an abbreviation for Siemens.

Baldour Electric Co.	BE
Brown Machine	BM
BTR Precision Die Casting	BTR
Caterpillar Inc.	CAT
Century, Inc.	CE
Clow Valve Co.	CLOW
Cloyes Gear	Cloy
Conine Manufacturing Co.	CON
Delavan Products	DEL
Delco Products Divsion, GMC	DELCO
Dupage Precision Products	DUPAGE
Fairbanks Morse Pump Corp.	FMP
Ford Meter Box Co., Inc.	FMB
G&E Machine Works, Inc.	G&E
General Electric. -DCM&G	GE
Genicom Corp.	GENI
Gravely Corp.	GRAV
Grinnell Corp	GRIN
Harvey Engineering & Mfg.	HAR
Hennessy Ind., Inc.	Henn
J&B Industrial Services	J&B
John Deere Dubuque Works	JD
Kennedy Valve	KV
Little Giant Pump Co.	LGP
Louis Allis	LA
M&H Valve	M&H
Mueller Co.	MUELL
Pneumotive	PNEU
Reliance Electric	RE
Roper Pump Co.	RP
Siemens	SI
Toshiba International	TOSH
Texsteam Products	TXT
Union Foundry	UF
US Electrical Motors	USEM
Vulcan Engineering	Vu
Wilton Corp.	WIL
Watts/Muesco	Watts

DAY: Monday DATE: 5-6-91 126 SHIFT: 1st + 2nd

HUNTER	1 25 SII 475 [✓] [ ] 817046	2 25 CE 90 [ ] [ ] 214015	3 25 VuL 200 [ ] [ ] 212016B	4 30A Delco 450 [ ] [ ] 63194010	5 30B Delco 95 [ ] [ ] 64997016	6 25 SI 150 [ ] [C] 904393	7 25 BE 50 [ ] [ ] 09EP1500	8 25 GE 50 [ ] [ ] 3685523349AO	9 25 SU 25 [ ] [C] 34017	10 30B M+I 35 [ ] [ ] 474020
BP	1 DOWN	2	3	4	5	6	7 ~~25 BE~~ ~~50~~ [ ] [ ] ~~09EP1500~~	11 25 SU 50 [ ] [C] 34002	12 25 BE 50 [ ] [ ] 09EP1500	13 25 CE 135 [ ] [C] 354278
1 & 2	1 25 SI 20 [✓] [C] 25 x 30 901623	2 30A Delco 225 [ ] [C] 25 x 30 63196008	3 30B CE 73 [50] [ ] 30 x 30 405925	4 30A SI 100 [ ] [C] 30 x 30 904357	5	6	7	14	15	16
9 & 10	1 25 SM 20 [✓] [C] 25 x 30 9804	2 30B Watts 301 [ ] [C] 25 x 30 3099-30	3 30A Delco 65 [ ] [ ] 25 x 25 6319438	4 30A Delco 75 [ ] [ ] 25 x 25 65525083	5 30A Delco 50 [ ] [ ] 22 x 22 64948230	6 25 BE 65 [ ] [ ] 22 x 22 10EP1200	7	17	18	19
3 & 4	1 30A CE 65 [✓] [C] 30 x 30 240551-02	2 25 SM 35 [ ] [C] 25 x 36 32401	3 25 BE 35 [ ] [C] 25 x 25 09SF1200	4 25 SU 5 [ ] [C] 25 x 36 32210	5	6	7	20	21	22
5 & 6	1 ~~25 BE~~ ~~5~~ [ ] [ ] ~~30 x 30~~ 16EP1704	2 25 BE 75 [✓] [ ] 30 x 30 18FH1001	3 25 BE 20 [ ] [C] 25 x 36 HA6307	4 25 SU 45 [ ] [C] 20 x 30 33112	5	6	7	23	24	25

NOTES: 405925 - BHN 187-241 - Check for Warp

38.

The green part of the schedule this time shows the NUMBER OF MOLDS to be poured. The biggest job is the first one for the HUNTER.

DAY: Monday

DATE: 5-6-91 126

SHIFT: 1st & 2nd

HUNTER	1 25 SI 475 [ ] [ ] 817046	2 25 CE 90 [ ] [ ] 214015	3 25 VuL 200 [ ] [ ] 212016B	4 30A Delco 450 [ ] [ ] 63194010	5 30B Delco 75 [ ] [ ] 64997016	6 25 SI 150 [ ] [C] 904393	7 25 BE 50 [ ] [ ] 09EP1500	8 25 GE 50 [ ] [ ] 36855238490	9 25 SU 25 [ ] [C] 34017	10 30B M+H 35 [ ] [ ] 474020
BP	1 [ ] [ ] DOWN	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 ~~25 BE~~ ~~50~~ [ ] [ ] ~~09EP1500~~	11 25 SU 50 [ ] [C] 34002	12 25 BE 50 [ ] [ ] 09EP1500	13 25 CE 135 [ ] [C] 354278
1 & 2	1 25 SI 20 [✓] [c] 25 x 30 901623	2 30A Delco 225 [ ] [c] 25 x 30 63196008	3 30B CE 73 [50] [ ] 30 x 30 405925	4 30A SI 100 [ ] [c] 30 x 30 904357	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
9 & 10	1 25 SM 20 [✓] [c] 25 x 30 9804	2 30B Watts 301 [ ] [c] 25 x 30 3099-30	3 30A Delco 65 [ ] [ ] 25 x 25 63194381	4 30A Delco 75 [ ] [ ] 25 x 25 65525083	5 30A Delco 50 [ ] [ ] 22 x 22 64948230	6 25 BE 65 [ ] [ ] 22 x 22 10EP1200	7 [ ] [ ] x	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
3 & 4	1 30A CE 65 [✓] [c] 30 x 30 240551-02	2 25 SM 35 [ ] [c] 25 x 36 32401	3 25 BE 35 [ ] [C] 25 x 25 09SF1200	4 25 SU 5 [ ] [C] 25 x 36 32210	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
5 & 6	1 ~~25 BE~~ ~~5~~ [ ] [ ] ~~30 x 30~~ ~~16EP1704~~	2 25 BE 75 [✓] [ ] 30 x 30 18FH1001	3 25 BE 20 [ ] [c] 25 x 36 HA6307	4 25 SU 45 [ ] [C] 20 x 30 33112	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES: 405925 - BHN 187-241 - Check For Warp

79

50

40.

If you see a 'c' in the bottom bracket -- [c] -- the casting requires a CORE to be placed inside the mold.

If there is no [c], the casting does not require a CORE.

DAY: Monday **DATE:** 5-6-91 126 **SHIFT:** 1st + 2nd

HUNTER	1 25 SI 475 817046	2 25 CE 90 214015	3 25 VuL 200 212016B	4 31A Delco 450 63194010	5 30B Delco 75 64997011	6 25 SI 150 [C] 904393	7 25 BE 50 09EP1500	8 25 GE 50 3685523494A0	9 25 SU 25 [C] 34017	10 30B M+1 35 474020
BP	1 DOWN	2	3	4	5	6	7 ~~25 BE~~ ~~50~~ ~~09EP1500~~	11 25 SU 50 [C] 34002	12 25 BE 50 09EP1500	13 25 CE 135 C 354278
1 & 2	1 25 SI 20 [✓] [C] 25 x 30 901623	2 30A Delco 225 [C] 25 x 30 63196008	3 30B CE 73 [50] 30 x 30 405925	4 30A SI 100 [C] 30 x 30 904357	5	6	7	14	15	16
9 & 10	1 25 SM 20 [✓] [C] 25 x 30 9804	2 30B Watts 301 [C] 25 x 30 3099-30	3 30A Delco 65 25 x 25 6319438	4 30A Delco 75 25 x 25 65525083	5 30A Delco 50 22 x 22 64948230	6 25 BE 65 22 x 22 10EP1200	7	17	18	19
3 & 4	1 30A CE 65 [✓] [C] 30 x 30 240551-02	2 25 SM 35 [C] 25 x 36 32401	3 25 BE 35 [C] 25 x 25 09SF1200	4 25 SU 5 [C] 25 x 36 32210	5	6	7	20	21	22
5 & 6	1 ~~25 BE~~ ~~5~~ 30 x 30 16EP1704	2 25 BE 75 [✓] 30 x 30 18FH1001	3 25 BE 20 [C] 25 x 36 HA6307	4 25 SU 45 [C] 20 x 30 33112	5	6	7	23	24	25

NOTES: 405925 - BHN 187-241 - Check for Warp

42.

These numbers tell you what FLASK SIZE to use to mold this casting

(The HUNTER molds only the FLASK SIZE that is built into it.)

DAY: Monday

DATE: 5-6-91 126

SHIFT: 1st & 2nd

HUNTER	1 25 SI 475 [ ] [ ] 817046	2 25 CE 90 [ ] [ ] 214015	3 25 VuL 200 [ ] [ ] 212016B	4 30A Delco 450 [ ] [ ] 63194010	5 30B Delco 75 [ ] [ ] 64997011	6 25 SI 150 [ ] [C] 904393	7 25 BE 50 [ ] [ ] 09EP1500	8 25 GE 50 [ ] [ ] 3665523-49AC	9 25 SU 25 [ ] [C] 24017	10 30B N+H 35 [ ] [ ] 474020
BP	1 [ ] [ ] DOWN	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 ~~25~~ ~~BE~~ ~~50~~ [ ] [ ] ~~09EP1500~~	11 25 SU 50 [ ] [C] 34002	12 25 BE 50 [ ] [ ] 09EP1500	13 25 CE 135 [ ] [C] 354278
1 & 2	1 25 SI 20 [✓] [c] 25 x 30 901623	2 30A Delco 225 [ ] [c] 25 x 30 63196008	3 30B CE 73 [50] [ ] 30 x 30 405925	4 30A SI 100 [ ] [c] 30 x 30 904357	5 [ ] [ ] ___ x ___	6 [ ] [ ] ___ x ___	7 [ ] [ ] ___ x ___	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
9 & 10	1 25 SM 20 [✓] [c] 25 x 30 9804	2 30B Watt 301 [ ] [c] 25 x 30 3099-30	3 30A Delco 65 [ ] [ ] 25 x 25 63194381	4 30A Delco 75 [ ] [ ] 25 x 25 65525083	5 30A Delco 50 [ ] [ ] 22 x 22 64948230	6 25 BE 65 [ ] [ ] 22 x 22 10EP1200	7 [ ] [ ] ___ x ___	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
3 & 4	1 30A CE 65 [✓] [c] 30 x 30 240551-02	2 25 SM 35 [ ] [c] 25 x 36 32401	3 25 BE 35 [ ] [c] 25 x 25 09SF1200	4 25 SU 5 [ ] [C] 25 x 36 32210	5 [ ] [ ] ___ x ___	6 [ ] [ ] ___ x ___	7 [ ] [ ] ___ x ___	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
5 & 6	1 ~~25~~ ~~RE.~~ ~~5~~ [ ] [ ] ~~30 x 30~~ 16EP1704	2 25 BE 75 [✓] [ ] 30 x 30 18FH1001	3 25 RE 20 [ ] [c] 25 x 36 HA6307	4 25 SU 45 [ ] [C] 20 x 30 33112	5 [ ] [ ] ___ x ___	6 [ ] [ ] ___ x ___	7 [ ] [ ] ___ x ___	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES: 405925 - BHN 187-241 - Check for Warp.

44.

Each square shows the PATTERN NUMBER.

DAY: Mondaux DATE: 5-6-91 126 SHIFT: 1st & 2nd

HUNTER	1 25 SI 475 [ ] [ ] 817046	2 25 CE 90 [ ] [ ] 214015	3 25 VuL 200 [ ] [ ] 212016B	4 31A Delco 450 [ ] [ ] 63194010	5 30B Delco 75 [ ] [ ] 64997016	6 25 SI 150 [ ] [C] 904393	7 25 BE 50 [ ] [ ] 09EP1500	8 25 GE 50 [ ] [ ] 3625523494A0	9 25 SU 25 [ ] [C] 34017	10 30B M+H 35 [ ] [ ] 474020
BP	1 [ ] [ ] DOWN	2 [ ] [ ]	3 [ ] [ ]	4 [ ] [ ]	5 [ ] [ ]	6 [ ] [ ]	7 ~~25 BE~~ ~~50~~ [ ] [ ] ~~09EP1500~~	11 25 SU 50 [ ] [C] 34002	12 25 BE 50 [ ] [ ] 09EP1500	13 25 CE 135 [ ] [C] 354278
1 & 2	1 25 SI 20 [✓] [c] 25 x 30 901623	2 30A Delco 225 [ ] [c] 25 x 30 63196008	3 30B CE 73 [50] [ ] 30 x 30 405925	4 30A SI 100 [ ] [c] 30 x 30 904357	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
9 & 10	1 25 SM 20 [✓] [c] 25 x 30 9804	2 30B Watts 301 [ ] [c] 25 x 30 3099-30	3 30A Delco 65 [ ] [ ] 25 x 25 6319438	4 30A Delco 75 [ ] [ ] 25 x 25 65525083	5 30A Delco 50 [ ] [ ] 22 x 22 64948230	6 25 BE 65 [ ] [ ] 22 x 22 10EP1200	7 [ ] [ ] x	17 [ ] [ ]	18 [ ] [ ]	19 [ ] [ ]
3 & 4	1 30A CE 65 [✓] [c] 30 x 30 240551-02	2 25 SM 35 [ ] [c] 25 x 36 32401	3 25 BE 35 [ ] [c] 25 x 25 09SF1200	4 25 SU 5 [ ] [c] 25 x 36 32210	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	20 [ ] [ ]	21 [ ] [ ]	22 [ ] [ ]
5 & 6	1 ~~25~~ BE ~~5~~ [ ] [ ] ~~30 x 30~~ 16EP1704	2 25 BE 75 [✓] [ ] 30 x 30 18FH1001	3 25 BE 20 [ ] [c] 25 x 36 HA6307	4 25 SU 45 [ ] [c] 20 x 30 33112	5 [ ] [ ] x	6 [ ] [ ] x	7 [ ] [ ] x	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES: 405925 - BHN 187-241 - Check For Warp.

46.

If the top brackets have 'SO' written in them -- [SO] -- that means 'SPECIAL ORDER'. Look below at the notes section of the schedule to see how the order is special.

DAY: Monday DATE: 5-6-91 126 SHIFT: 1st + 2nd

HUNTER	1 25 SI 475 817046	2 25 CE 90 214015	3 25 VuL 200 21201LB	4 31A Delco 450 63194010	5 30B Delco 75 64997011	6 25 SI 150 [C] 904393	7 25 BE 50 09EP1500	8 25 GE 50 [illegible]	9 25 SU 25 [C] 34017	10 30B M+1 35 474020
BP	1 DOWN	2	3	4	5	6	7 ~~25 BE~~ ~~50~~ ~~09EP1500~~	11 25 SU 50 [C] 34002	12 25 BE 50 09EP1500	13 25 CE 135 [C] 354273
1 & 2	1 25 SI 20 [✓] [C] 25 x 30 901623	2 30A Delco 225 [C] 25 x 30 63196008	3 30B CE 73 [50] 30 x 30 405925	4 30A SI 100 [C] 30 x 30 904357	5 x	6 x	7 x	14	15	16
9 & 10	1 25 SM 20 [✓] [C] 25 x 30 9804	2 30B Watts 301 [C] 25 x 30 3099-30	3 30A Delco 65 25 x 25 6319438	4 30A Delco 75 25 x 25 65525083	5 30A Delco 50 22 x 22 64948230	6 25 BE 65 22 x 22 10EP1200	7 x	17	18	19
3 & 4	1 30A CE 65 [✓] [C] 30 x 30 240551-02	2 25 SM 35 [C] 25 x 36 32401	3 25 BE 35 [C] 25 x 25 09SF1200	4 25 SU 5 [C] 25 x 36 32210	5 x	6 x	7 x	20	21	22
5 & 6	1 ~~25 BE~~ ~~5~~ ~~30 x 30~~ 16EP1704	2 25 BE 75 [✓] 30 x 30 18FH1001	3 25 BE 20 [C] 25 x 36 HA6307	4 25 SU 45 [C] 20 x 30 33112	5 x	6 x	7 x	23	24	25

NOTES: 405925 - BHN 187-241 - Check for Warp

48.

This schedule shows a number of SPECIAL ORDERS. The notes can be matched to job squares by matching up pattern numbers.

49.

DAY: Wednesday "135" DATE: 5-15-91 SHIFT:

HUNTER	1 20S Tosh 300 [ ] [C] 121-0035	2 30A KV 55 [ ] [C] 40162P	3 25 SI 225 [SO] [C] 901505	~~30B Delco 35 [ ] [ ] 64997016~~	5 30A Delco 10 [ ] [ ] 65351401	6 25 CE 25 [ ] [ ] 991C9280E	7 25 SI 250 [SO] [C] 901504	8 25 J+B 250 [ ] [ ] R-153-E	9 [ ] [ ]	10 [ ] [ ]
BP	~~30B M+H 350 [ ] [C] 300333~~	2 25 SI 35 [ ] [ ] 810207	3 25 LGP 20 [ ] [ ] C-114000	4 25 CE 100 [ ] [ ] 359841	5 25 CE 125 [ ] [ ] 402249	6 25 SI 15 [SO] [ ] 718273	7 [ ] [ ]	11 30B Delco 125 [ ] [ ] 62803049	12 [ ] [ ]	13 [ ] [ ]
1 & 2	1 30A Delco [ ] [C] 25 x 30 63199224	2 30A Delco 15 [ ] [C] 30 x 30 65362439	3 20S Tosh 35 [ ] [C] 32 x 41 121-0020-10	4 [ ] [ ] x	5 30B CE 75 [SO] [ ] 30 x 30 405925	6 30B GE 50 [ ] [C] 30 x 30 F-3803	7 30B CE 75 [SO] [C] 32 x 41 406115	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
9 & 10	1 25 B 95 [ ] [ ] 22 x 22 10EP1200	2 20S Tosh 184 [ ] [C] 25 x 30 121-0026	3 30A Delco 15 [ ] [C] 22 x 22 64445252	4 25 CE 45 [ ] [C] 25 x 30 316459	5 25 SU 10 [SO] [C] 25 x 30 9524	6 [ ] [ ] x	7 [ ] [ ] x	~~17 30B Delco 125 [ ] [ ] 62803048~~	18 [ ] [ ]	19 [ ] [ ]
3 & 4	1 20S Tosh 400 [ ] [C] 30 x 20 121-0002	2 25 BE 15 [ ] [C] 25 x 25 095E1201	3 25 SU 10 [ ] [C] A 25 x 30 32310	4 25 SU 305 [ ] [C] 25 x 36 32023	5 25 CE 35 [ ] [C] 30 x 24 308134	6 25 SU 10 [ ] [C] A 25 x 36 32410	7 30A SI 10 Strip Q. [C] 30 x 30 905870	~~30B Delco 400 [ ] [C] 63194010~~	21 [ ] [ ]	22 [ ] [ ]
5 & 6	1 25 VLL 90 [ ] [ ] 30 x 36 262015004	2 30A Delco 15 [ ] [ ] 30 x 30 62803848	3 30A CE 30 [ ] [ ] 30 x 30 346036	4 30A CE 25 [ ] [ ] 30 x 30 346038	5 30A CE 10 [ ] [ ] 30 x 30 346047	6 25 CE 10 [ ] [ ] 30 x 30 346058	7 25 BE 7 [ ] [C] 25 x 36 H116107	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES: 718273 - Squeeze

901505 - Defect Final Critical

901504 - " " " 406115 Check for warp

9524 - Cecco Heat Sinking

50. The Green Sand Schedule will keep you on top of what work is to be done when.

The following questions will help you review what we've covered so far.

Directions: Choose the correct answer. Write the letter of your answer in the blank.

The first one is done for you.

1. This is a __a__.

a. green sand schedule
b. lost foam schedule
c. SPC chart

2. The number '20' will be printed alongside the pattern number on ______.

a. castings poured on molding machine number 20
b. castings poured on January 20
c. castings poured from the softest iron

3. HUNTER jobs are filled in on the ______ of the Green Sand Schedule.

a. bottom line
b. top line
c. middle line

4. An arrow drawn from one square to in in front of other squares means that ______.

a. the job is explained on the OPOS
b. the job is a special order
c. the job is to be done earlier than it was scheduled.

5. The special order note for the job square with pattern number 718273 ______.

a. is explained in the note for 406115
b. is explained in the note for 718273
c. is explained in the note for 901505

6. The customer abbreviaiton 'FMB' means the job is for ______.

a. Ford Meter Box Company
b. Siemens
c. Baldour Electric Co.

The correct answers are on the next two pages.

DAY: Wednesday "135" DATE: 5-15-91

SHIFT:

HUNTER	1 20S Tosh 300 [ ] [C] 121-0035	2 30A KV 55 [ ] [C] 40162P	3 25 SI 275 [50] [C] 901505	4 ~~30B~~ ~~Delco~~ ~~35~~ [ ] [ ] ~~64997016~~	5 30A Delco 10 [ ] [ ] 65351401	6 25 CE 25 [ ] [ ] 441C9282E	7 25 SI 250 [50] [C] 901504	8 25 S+B 250 [ ] [ ] R-153-E	9 [ ] [ ]	10
BP	1 ~~30B~~ ~~Meth~~ ~~350~~ [ ] [C] ~~300333~~	2 25 SI 35 [ ] [ ] S10207	3 25 LGP 20 [ ] [ ] C-114000	4 25 CE 100 [ ] [ ] 359841	5 25 CE 125 [ ] [ ] 402249	6 25 SI 15 [50] [ ] 718273	7 [ ] [ ]	11 30B Delco 125 [ ] [ ] 62803049	12 [ ] [ ]	13
1 & 2	1 30A Delco [ ] [C] 25 × 30 63199224	2 30A Delco 15 [ ] [C] 30 × 30 65262439	3 20S TOSH 35 [ ] [C] 32 × 41 121-0020-10	4 [ ] [ ] x	5 30B CE 75 [50] [ ] 30 × 30 405925	6 30B GHE 50 [ ] [C] 30 × 30 F-3803	30B CE 75 [50] [C] 32 × 41 406115	14 [ ] [ ]	15 [ ] [ ]	16
9 & 10	1 25 B 95 [ ] [ ] 22 × 22 10EP1200	2 20S Tosh 184 [ ] [C] 25 × 30 121-0026	3 30A Delco 15 [ ] [C] 22 × 22 64448252	4 25 CE 45 [ ] [C] 25 × 30 316459	5 25 SU 10 [50] [C] 25 × 30 9524	6 [ ] [ ] x	7 [ ] [ ] x	17 ~~30B~~ ~~Delco~~ ~~125~~ [ ] [ ] ~~62803049~~	18 [ ] [ ]	19
3 & 4	1 20S Tosh 400 [ ] [C] 30 × 20 121-0002	2 25 BE 45 [ ] [C] 25 × 25 09551201	3 25 SU 10 [ ] [C] A 25 × 36 32310	4 25 SU 305 [ ] [C] 25 × 36 32023	5 25 CE 35 [ ] [C] 20 × 24 308134	6 25 SU 10 [ ] [C] A 25 × 36 32410	7 30A SI 10 Scrap [C] 30 × 30 905870	20 ~~30B~~ ~~Delco~~ ~~400~~ [ ] [C] ~~63194010~~	21 [ ] [ ]	22
5 & 6	1 25 VnL 90 [ ] [ ] 30 × 36 262015004	2 30A Delco 15 [ ] [ ] 30 × 30 62803848	3 30A CE 30 [ ] [ ] 30 × 30 346036	4 30A CE 25 [ ] [ ] 30 × 30 346038	5 30A CE 10 [ ] [ ] 30 × 30 346047	6 25 CE 10 [ ] [ ] 30 × 30 346058	7 25 BE 7 [ ] [C] 25 × 36 HB6707	23 [ ] [ ]	24 [ ] [ ]	25

NOTES: 718273 - Squeeze
901505 - Delphi Finish Critical
901504 - " " " 406115 Check for warp
9524 - Cosco Neck Gluing

ANSWERS

1. a. This is the correct answer.

   b. There is a Lost Foam Schedule, and a DISA Schedule, but they are different from this one.
   c. SPC (Statistical Process Control) charts are used at Robinson, but this is the Green Sand Schedule.

2. b. This is the correct answer.

   a. The '20' means the 20th day of the year.
   c. The '20' means the 20th day of the year.

3. b. This is the correct answer.

   a. Read the column along the left hand side of the paper to see which machine or pallet lines the jobs match up with.
   c. Read the column along the left hand side of the paper to see which machine or pallet lines the jobs match up with.

4. c. This is the correct answer.

   a. All jobs are explained on the OPOS (Open Purchase Order Status), but that has nothing to do with the arrow and star.
   b. Special Order jobs are shown by 'SO' written in the brackets, but that has nothing to do with the arrow and star.

5. b. This is the correct answer.

   a. Match the pattern number (718273) to the number next to the note.
   c. Match the pattern number (718273) to the number next to the note.

6. a. This is the correct answer.

   b. The abbreviation for Siemens is 'SI'.
   c. The abbreviation for Baldour Electric is 'BE'

7. b. This is the correct answer.

   a. The customer name appears in abbreviated form in the upper right hand corner of each job square.
   c. The number of moldings appears in the center oval on each job square.

56.

Focus on a single job square

Now let's look closely at a single job square, and review what each part tells us. First, we know that this is the first job for Pallet Lines 3&4 on Wednesday, May 15, 1991.

DAY: Wednesday "135" DATE: 5-15-91

SHIFT:

HUNTER	1 20S To-H 300 [ ] [C] 121-0035	2 30A KV 55 [ ] [C] 40162P	3 25 SI 275 [SO] [C] 901505	4 ~~30B~~ ~~Deco~~ ~~35~~ [ ] [ ] ~~649970H~~	5 30A Delco 10 [ ] [ ] 65351401	6 25 CE 25 [ ] [ ] 491C9298E	7 25 SI 250 [SO] [C] 901504	8 25 J+B 250 [ ] [ ] R-153-E	9 [ ] [ ]	10
BP	1 ~~30B~~ ~~M+M~~ ~~350~~ [ ] [C] ~~300333~~	2 25 SI 35 [ ] [ ] S10207	3 25 LGP 20 [ ] [ ] C-114600	4 25 CE 100 [ ] [ ] 359841	5 25 CE 125 [ ] [ ] 402249	6 25 SI 15 [SO] [ ] 718273	7 [ ] [ ]	11 30B Delco 125 [ ] [ ] 62803049	12 [ ] [ ]	13
1 & 2	1 30A Deco [ ] [C] 25 x 30 63199774	2 30A Deco 15 [ ] [C] 30 x 30 65362439	3 20S TOSH 35 [ ] [C] 32 x 41 121-0020-10	4 [ ] [ ] x	5 30B CE 75 [SO] [ ] 32 x 30 405925	6 30B GE 50 [ ] [C] 30 x 30 F-3803	30B CE 75 [SO] [C] 32 x 41 406115	14 [ ] [ ]	15 [ ] [ ]	16
9 & 10	1 25 B 95 [ ] [ ] 22 x 22 10EP1300	2 20S TOSH 184 [ ] [C] 25 x 30 121-0026	3 30A Delco 15 [ ] [C] 22 x 22 64445252	4 25 CE 45 [ ] [C] 25 x 30 316459	5 25 SU 10 [SO] [C] 25 x 30 9524	6 [ ] [ ] x	7 [ ] [ ] x	17 ~~30B~~ ~~Delco~~ ~~125~~ [ ] [ ] ~~62803049~~	18 [ ] [ ]	19
3 & 4	1 20S TOSH 400 [ ] [C] 30 x 20 121-0002	2 25 BE 45 [ ] [C] 25 x 25 095E1201	3 25 SU 10 [ ] [C] A 25 x 36 32310	4 25 SU 305 Samp [ ] [C] 25 x 36 32023	5 25 CE 35 [ ] [C] 30 x 24 308134	6 25 SU 1A 10 [ ] [C] 25 x 36 32410	7 30A SI 10 Samp Q. [C] 30 x 30 905870	~~30B~~ ~~Delco~~ ~~400~~ [ ] [C] ~~63194010~~	21 [ ] [ ]	22
5 & 6	1 25 V+L 90 [ ] [ ] 30 x 36 262015004	2 30A Delco 15 [ ] [ ] 30 x 30 62803848	3 30A CE 30 [ ] [ ] 30 x 30 346036	4 30A CE 25 [ ] [ ] 30 x 30 346038	5 30A CE 10 [ ] [ ] 30 x 30 346047	6 25 CE 10 [ ] [ ] 30 x 30 346058	7 25 BE 7 [ ] [C] 25 x 36 HA6407	23 [ ] [ ]	24 [ ] [ ]	25

NOTES: 718273 - Squeeze
901505 = Surface Finish Critical
901504 - " " " 406115 Check for warp
9524 - Cocoa Neck [illegible]

58.

We know that the class of iron is 20-S
The company is TOSH.
There is a core [c] in the mold.

DAY: Wednesday "135" DATE: 5-15-91

SHIFT:

HUNTER	1 20S Tosh 300 [ ] [C] 131-0035	2 30A KV 55 [ ] [C] 40162P	3 25 SI 225 [50] [C] 901505	~~4 30B Delco 35 [ ] [ ] 6499706~~	5 30A Delco 10 [ ] [ ] 65351401	6 25 CE 25 [ ] [ ] [illegible]	7 25 SI 250 [50] [C] 901504	8 25 S+B 250 [ ] [ ] R-153-E	9 [ ] [ ]	10
BP	~~1 30A Mott 350 [ ] [C] 300333~~	2 25 SI 35 [ ] [ ] S10207	3 25 LGP 20 [ ] [ ] C-114000	4 25 CE 100 [ ] [ ] 359541	5 25 CE 125 [ ] [ ] 402249	6 25 SI 15 [50] [ ] 718273	7 [ ] [ ]	11 30B Delco 125 [ ] [ ] 62803049	12 [ ] [ ]	13
1 & 2	1 30A Deco [ ] [C] 25 × 30 63199224	2 30A Deco 15 [ ] [C] 30 × 30 65362439	3 20S Tosh 35 [ ] [C] 32 × 41 121-0020-10	4 ×	5 30B CE 75 [50] [ ] 30 × 30 405925	6 30B GTE 50 [ ] [C] 30 × 30 F-3803	7 30B CE 75 [50] [C] 32 × 41 406115	14 [ ] [ ]	15 [ ] [ ]	16
9 & 10	1 25 B 95 [ ] [ ] 22 × 22 10EP1200	2 20S Tosh 184 [ ] [C] 25 × 30 131-0026	3 30A Delco 15 [ ] [C] 22 × 22 64445232	4 25 CE 45 [ ] [C] 25 × 30 316459	5 25 SU 10 [50] [C] 25 × 30 9524	6 [ ] [ ] ×	7 [ ] [ ] ×	~~17 30B Delco 125 [ ] [ ] 62803049~~	18 [ ] [ ]	19
3 & 4	1 20S Tosh 400 [ ] [C] 30 × 20 121-0002	2 25 BE 45 [ ] [C] 25 × 25 09SE1201	3 25 SU 10 [ ] [C] 25 × 30 32310	4 25 SU 305 [ ] [C] 25 × 36 32023	5 25 CE 35 [ ] [C] 20 × 24 308134	6 25 SU 10 [ ] [C] 25 × 36 32410	7 30A SI 10 Samp. [C] 30 × 30 905870	~~20 30B Delco 400 [ ] [C] 63194010~~	21 [ ] [ ]	22
5 & 6	1 25 VaL 90 [ ] [ ] 30 × 36 262015004	2 30A Deco 15 [ ] [ ] 30 × 30 62803848	3 30A CE 30 [ ] [ ] 30 × 30 346036	4 30A CE 25 [ ] [ ] 30 × 30 346038	5 30A CE 10 [ ] [ ] 30 × 30 346047	6 25 CE 10 [ ] [ ] 30 × 30 346058	7 25 BE 7 [ ] [C] 25 × 36 HA6307	23 [ ] [ ]	24 [ ] [ ]	25

NOTES: 718273 - Squeeze
901505 = Surface Finish Critical
901504 - " " " 406115 Check for warp
9524 - [illegible]

60.

The flask size is 30 x 30.
The pattern number is 121-0002.
The order is to make 400 molds.

DAY: Wednesday "135" DATE: 5-15-91 SHIFT:

HUNTER	1 20S Tosh 300 [ ] [C] 121-0035	2 30A KV 55 [ ] [C] 40162P	3 25 SI 225 [50] [C] 901505	~~30B~~ ~~Delco~~ ~~25~~ [ ] [ ] ~~6499701L~~	5 30A Delco 10 [ ] [ ] 65351401	6 25 CE 25 [ ] [ ] 491CC9358E	7 25 SI 250 [50] [C] 901504	8 25 J+B 250 [ ] [ ] R-153-E	9 [ ] [ ]	10
BP	1 ~~30A~~ ~~Moth~~ ~~350~~ [ ] [C] ~~300333~~	2 25 SI 35 [ ] [ ] S10207	3 25 LGP 20 [ ] [ ] C-114000	4 25 CE 100 [ ] [ ] 359841	5 25 CE 125 [ ] [ ] 402349	6 25 SI 15 [50] [ ] 718273	7 [ ] [ ]	11 30B Delco 125 [ ] [ ] 62803049	12 [ ] [ ]	13
1 & 2	1 30A Delco [ ] [C] 25x30 63199774	2 30A Delco 15 [ ] [C] 30x30 65362439	3 20S Tosh 35 [ ] [C] 32x41 121-0020-10	4 [ ] [ ] x	5 30B CE 75 [50] [ ] 30x30 405925	6 30B G+E 50. [ ] [C] 30x30 F-3803	7 30B CE 75 [50] [C] 32x41 406115	14 [ ] [ ]	15 [ ] [ ]	16
9 & 10	1 25 B 95 [ ] [ ] 22x22 10EP1300	2 20S Tosh 184 [ ] [C] 25x30 121-0026	3 30A Delco 15 [ ] [C] 22x22 64445252	4 25 CE 45 [ ] [C] 25x30 316459	5 25 SU 10 [50] [C] 25x30 9524	6 [ ] [ ] x	7 [ ] [ ] x	17 ~~30B~~ ~~Delco~~ ~~125~~ [ ] [ ] ~~62803049~~	18 [ ] [ ]	19
3 & 4	1 20S Tosh 400 [ ] [C] 30x20 121-0002	2 25 BE 15 [ ] [C] 25x25 095E1201	3 25 SU 10 [ ] [C] * 25x36 32310	4 25 SU 30 Sm [ ] [C] 25x26 32023	5 25 CE 35 [ ] [C] 20x24 308134	6 25 SU 10 [ ] [C] * 25x36 32410	7 30Fr SI 10 Smp Q. [C] 30x30 905870	~~30B~~ ~~Delco~~ ~~400~~ [ ] [C] ~~63194010~~	21 [ ] [ ]	22
5 & 6	1 25 VuL 90 [ ] [ ] 30x36 262015004	2 30A Delco 15 [ ] [ ] 30x30 62803848	3 30A CE 30 [ ] [ ] 30x30 346036	4 30A CE 25 [ ] [ ] 30x30 346038	5 30A CE 10 [ ] [ ] 30x30 346047	6 25 CE 10 [ ] [ ] 30x30 346058	7 25 BE 7 [ ] [C] 25x36 HA6307	23 [ ] [ ]	24 [ ] [ ]	25

NOTES: 718273 - Squeeze
901505 = Degree Finish Critical
901504 - " " " 406115 Check for warp
9524 = Cross Neck Shrink

62.

In this case, the job is a ~~4~~Hot Job. Pallet Lines 3&4 have to do this job.

DAY: Wednesday "135" DATE: 5-15-91 63. SHIFT:

HUNTER	1 20S Tosh 300 [C] 121-0035	2 30A KV 55 [C] 40162P	3 25 SI 225 50 [C] 901505	~~4 30A Delco 35 64997016~~	5 30A Delco 10 65351401	6 25 CE 25 991C-9235E	7 25 SI 250 50 [C] 901504	8 25 S+B 250 R-153-E	9	10
BP	~~1 30A M+H 350 [C] 300333~~	2 25 SI 35 810207	3 25 LGP 20 C-114000	4 25 CE 100 359841	5 25 CE 125 402249	6 25 SI 15 50 718273	7	11 30B Delco 125 62803049	12	13
1 & 2	1 30A Delco [C] 25 x 30 63199774	2 30A Delco 15 [C] 30 x 30 65312439	3 20S Tosh 35 [C] 32 x 41 121-0020-10	4 x	5 30B CE 75 50 30 x 30 405925	6 30B GE 50 [C] 30 x 30 F-3803	7 30B CE 75 50 [C] 32 x 41 406115	14	15	16
9 & 10	1 25 B 95 22 x 22 10EP1200	2 20S Tosh 184 [C] 25 x 30 121-0026	3 30A Delco 15 [C] 22 x 22 64445232	4 25 CE 45 [C] 25 x 30 316459	5 25 SU 10 50 [C] 25 x 30 9524	6 x	7 x	~~17 30B Delco 125 62803049~~	18	19
3 & 4	1 20S Tosh 400 [C] 30 x 20 121-0002	2 25 BE 45 [C] 25 x 25 09551201	3 25 SU 10 [C] ☆ 25 x 30 32310	4 25 SU 30 Sq [C] 25 x 36 32033	5 25 CE 35 [C] 30 x 24 305134	6 25 SU 10 [C] ☆ 25 x 36 32410	7 30A SI 10 Strip Q. [C] 30 x 30 905870	~~20 30B Delco 400 [C] 63194010~~	21	22
5 & 6	1 25 VuL 90 30 x 36 262015004	2 30A Delco 15 30 x 30 62803848	3 30A CE 30 30 x 30 346036	4 30A CE 25 30 x 30 346038	5 30A CE 10 30 x 30 346047	6 25 CE 10 30 x 30 346058	7 25 BE 7 [C] 25 x 36 406407	23	24	25

NOTES: 718273 – Squeeze
901505 = Defiance Finish Critical
901504 – " " " 406115 Check for warp
9524 = Cross Neck Sluing

~~125~~

64.

The class of iron is 25.
The company is SI.
There is a core in the mold.

DAY: Wednesday "135" DATE: 5-15-91 SHIFT:

HUNTER	1 20S Tosh 300 [C] 121-0035	2 30A KV 55 [C] 4016ZP	3 25 SI 225 [SO] [C] 901505	4 ~~30B Delco~~ ~~35~~ ~~6499707L~~	5 30A Delco 10 65351401	6 25 CE 25 441C9238E	7 25 SI 250 [SO] [C] 901504	8 25 S+B 250 R-153-E	9	10
BP	1 ~~30B M+H~~ ~~350 [C]~~ ~~300333~~	2 25 SI 35 810207	3 25 LGP 20 C-114000	4 25 CE 100 359841	5 25 CE 125 402249	6 25 SI 15 [SO] 718273	7	11 30B Delco 125 62803049	12	13
1 & 2	1 30A Delco [C] 25×30 63199224	2 30A Delco 15 [C] 30×30 65363439	3 20S Tosh 35 [C] 32×41 121-0020-10	4 x	5 30B CE 75 [SO] 30×30 405925	6 30B GE 50 [C] 30×30 F-2803	7 30B CE 75 [SO] [C] 32×41 406115	14	15	16
9 & 10	1 25 B 95 22×22 10EP1200	2 20S Tosh 184 [C] 25×30 121-0026	3 30A Delco 15 [C] 22×22 64443252	4 25 CE 45 [C] 25×30 316459	5 25 SU 10 [SO] [C] 25×30 9524	6 x	7 x	17 ~~30B Delco~~ ~~125~~ ~~62803049~~	18	19
3 & 4	1 20S Tosh 400 [C] 30×20 121-0002	2 25 GE 15 [C] 25×25 09SE1201	3 25 SU 10 [C] A 25×30 32310	4 25 SU 30S [C] 25×26 32023	5 25 CE 35 [C] 30×24 308134	6 25 SU 10 [C] A 25×36 32410	7 30A SI 10 Simp Q. [C] 30×30 905870	20 ~~30B Delco~~ ~~400 [C]~~ ~~63194010~~	21	22
5 & 6	1 25 VL 90 30×36 262015004	2 30A Delco 15 30×30 62803848	3 30A CE 30 30×30 346036	4 30A CE 25 30×30 346038	5 30A CE 10 30×30 346047	6 25 CE 10 30×30 346058	7 25 GE 7 [C] 25×36 HB6307	23	24	25

NOTES: 718273 - Squeeze
901505 - Defined Finish Critical
901504 - " " " 406115 Check for warp
9524 - Cocco Heel [illegible]

66.

The order is to make 10 molds.
The flask size is 25 x 36.
The pattern number is 32410.

67.

DAY: Wednesday "135" DATE: 5-15-91 SHIFT:

HUNTER	1 20S To-N 300 [C] 121-0035	2 30A KV 55 [C] 40162P	3 25 SI 225 [50] [C] 901505	~~4 30B Delco 35 64997016~~	5 30A Delco 10 65351401	6 25 CE 25 4911C9280E	7 25 SI 250 [50] [C] 901504	8 25 J&B 250 R-153-E	9	10
BP	~~1 30B M+M 350 [C] 300333~~	2 25 SI 35 810207	3 25 LGP 20 C-114000	4 25 CE 100 359841	5 25 CE 125 402249	6 25 SI 15 [50] 713273	7	11 30B Delco 125 62803049	12	13
1 & 2	1 30A Delco [C] 25 x 30 63199224	2 30A Delco 15 [C] 30 x 30 65362439	3 20S TOSH 35 [C] 32 x 41 121-0020-10	4 x	5 30B CE 75 [50] 30 x 30 405925	6 30B GE 50 [C] 30 x 30 F-3803	7 30B CE 75 [50] [C] 32 x 41 406115	14	15	16
9 & 10	1 25 B 95 22 x 22 10EP1200	2 20S Tosh 184 [C] 25 x 30 121-0026	3 30A Delco 15 [C] 22 x 22 64445252	4 25 CE 45 [C] 25 x 30 316459	5 25 SU 10 [50] [C] 25 x 30 9524	6 x	7 x	~~17 30B Delco 125 62803049~~	18	19
3 & 4	1 20S Tosh 400 [C] 30 x 20 121-0002	2 25 BE 45 [C] 25 x 25 095E1201	3 25 SU 10 [C] A 25 x 36 32310	4 25 SU 30 Strip [C] 25 x 36 32023	5 25 CE 35 [C] 30 x 24 308134	6 25 SU 10 [C] A 25 x 36 32410	7 30A SI 10 Strip Q. [C] 30 x 50 905870	~~20 30B Delco 400 [C] 63194010~~	21	22
5 & 6	1 25 VnL 90 30 x 36 262015004	2 30A Delco 15 30 x 30 62803848	3 30A CE 30 30 x 30 346036	4 30A CE 25 30 x 30 346038	5 30A CE 10 30 x 30 346047	6 25 CE 10 30 x 30 346058	7 25 BE 7 [C] 25 x 36 HA6307	23	24	25

NOTES: 713273 - Squeeze
901505 = Subject Finish Critical
901504 - " " " 406115 Check for warp
9524 - Cerco Red Blue

The following questions will help you review the information about job squares.

Questions about job squares.

Directions

Look at the enlarged job square on the opposite page. Choose the correct answer. Write the letter of your answer in the blank.

The first one is done for you.

1. The class of iron is __a___.

   a. 30-A
   b. 125
   c. 63197787

2. The company is ______ .

   a. [c]
   b. TOSH
   c. DELCO

3. Is there a core in the mold?______

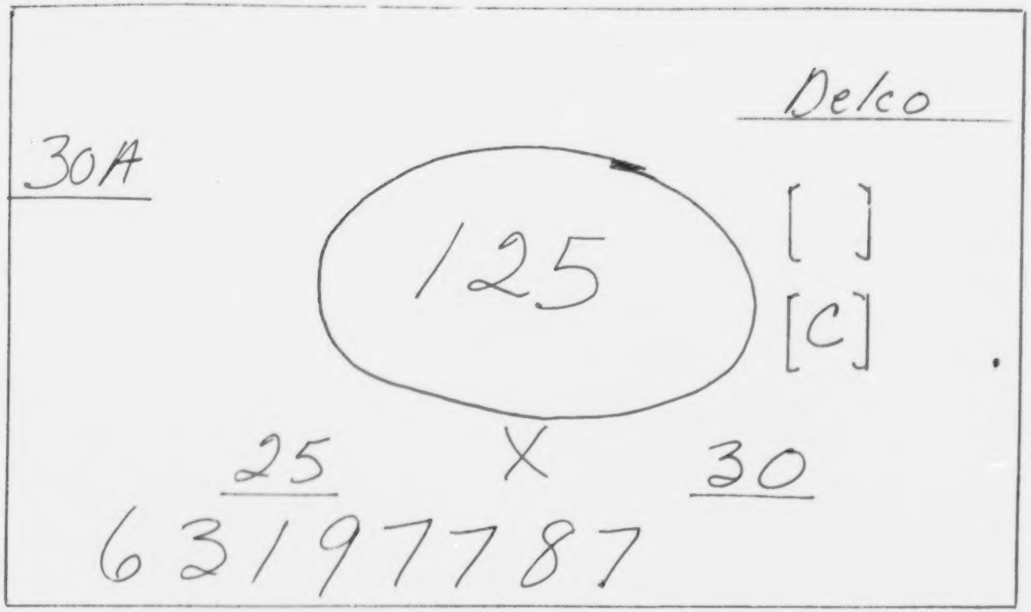
   a. yes
   b. no
   c. can't tell

5. The pattern number is ______ .

   a. 63197787
   b. 125
   c. 30-A

6. The order is to make ______.

   a. 125 molds
   b. 25 x 30 molds
   c. 63197787 molds



Delco

30A

125

[ ]

[C]

25 X 30

63197787

When you have finished, check your answers with those on the next two pages.

ANSWERS

Questions about job square

1. a. This is the correct answ

   b. 125 molds are to be poured.
   c. 63197787 is the pattern number.

2. c. This is the correct answer.

   a. [c] means there is a core in the mold.
   b. TOSH is the abbreviation of Toshiba International Corp.

3. a. This is the correct answer.

   b. [c] means there is a core in the mold.
   c. [c] means there is a core in the mold.

4. b. This is the correct answer.

   a. 125 molds are to be made.
   c. 63197787 is the pattern number.

5. a. This is the correct answer.

   b. 125 molds are to be made.
   c. 30-A is the class of iron.

6. a. This is the correct answer.

   b. 25x30 is the flask size.
   c. 63197787 is the pattern number.

Delco

30A

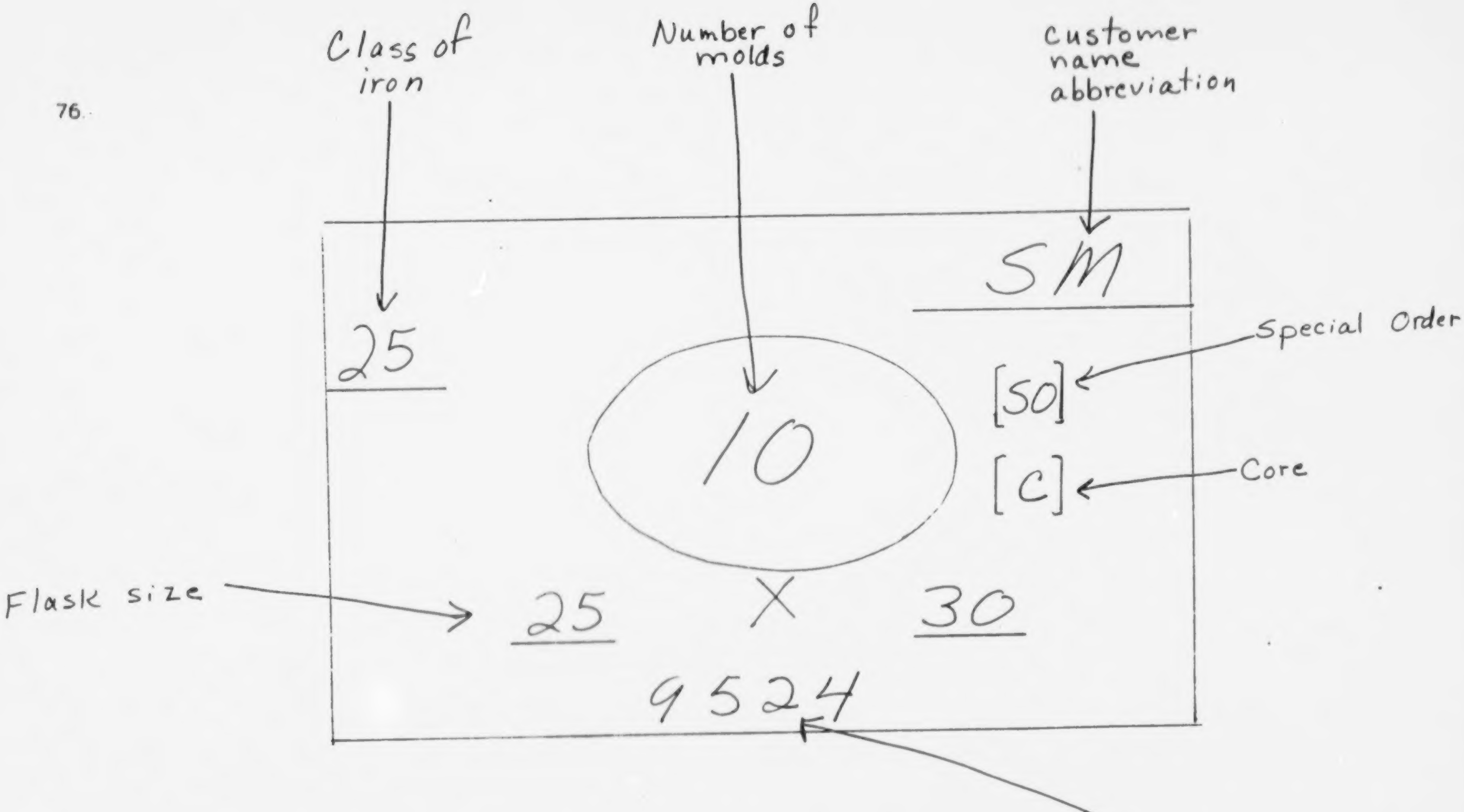
[ ]

[C]

125

25 X 30

63197787


Class of iron
Number of molds
customer name abbreviation
SM
25
Special Order
[SO]
10
[C]
Core
Flask size
25
X
30
9524
Pattern number

You have completed the lesson.

Go on to the next page to retake the quiz you started this booklet with, or go back and review the lesson before retaking the quiz.

QUIZ 2

Using the schedule on p. 79, circle the answers you think are correct.

The first one is done for you.

1. How many jobs are scheduled for Floor 3&4?

[✓ a. 7]
b. 20
c. 2

2. How many molds should be made for the 1st job on Floor 9&10?

a. 25
b. 184
c. 95

3. What is the flask size for the 1st job on Floor 9&10?

a. 25x30
b. 22x22
c. 30x30

4. What is the class of iron for the 1st job on Floor 5&6?

a. 20-s
b. 25
c. 90

5. What is the casting number for the 1st job on the Hunter?

a. 121-0035
b. 300
c. 20-s

6. How do you know that a job is a Hot Job?

a. the square has an x through it
b. the square has a star★ in it
c. the square is first on the chart

7. How many jobs are scheduled for the HUNTER?

a. 8
b. 25
c. 31

79.

DAY: Wednesday "135" DATE: 5-15-91 SHIFT:

HUNTER	1 20S Tosh 300 [ ] [C] 121-0035	2 30A KV 55 [ ] [C] 40162P	3 25 SI 225 [50] [C] 901505	4 ~~30B Delco~~ ~~35~~ [ ] [ ] ~~6499701~~	5 30A Delco 10 [ ] [ ] 65351401	6 25 CE 25 [ ] [ ] 491C2280E	7 25 SI 250 [50] [C] 901504	8 25 J+B 250 [ ] [ ] R-153-E	9 [ ] [ ]	10 [ ] [ ]
BP	1 ~~30B M+H~~ ~~350~~ [ ] [C] ~~300333~~	2 25 SI 35 [ ] [ ] 810207	3 25 LGP 20 [ ] [ ] C-114000	4 25 CE 100 [ ] [ ] 359541	5 25 CE 125 [ ] [ ] 402249	6 25 SI 15 [50] [ ] 718273	7 [ ] [ ]	11 30B Delco 125 [ ] [ ] 62803049	12 [ ] [ ]	13 [ ] [ ]
1 & 2	1 30A Delco [ ] [C] 25 × 30 63197774	2 30A Delco 15 [ ] [C] 30 × 30 65362439	3 20S TOSH 35 [ ] [C] 32 × 41 121-0020-10	4 [ ] [ ] x	5 30B CE 75 [50] [ ] 30 × 30 405925	6 30B GYE 50 [ ] [C] 30 × 30 F-3803	7 30B CE 75 [50] [C] 32 × 41 406115	14 [ ] [ ]	15 [ ] [ ]	16 [ ] [ ]
9 & 10	1 25 B 95 [ ] [ ] 22 × 22 10EP1200	2 20S Tosh 184 [ ] [C] 25 × 30 121-0026	3 30A Delco 15 [ ] [C] 22 × 22 64448232	4 25 CE 45 [ ] [C] 25 × 30 316459	5 25 SU 10 [50] [C] 25 × 30 9524	6 [ ] [ ] x	7 [ ] [ ] x	17 ~~30B Delco~~ ~~125~~ [ ] [ ] ~~62803049~~	18 [ ] [ ]	19 [ ] [ ]
3 & 4	1 20S Tosh 400 [ ] [C] 30 × 20 121-0002	2 25 BE 45 [ ] [C] 25 × 25 095E1201	3 25 SU A 10 [ ] [C] 25 × 36 32310	4 25 SU 305 [ ] [C] 25 × 36 32023	5 25 CE 35 [ ] [C] 20 × 24 308134	6 25 SU A 10 [ ] [C] 25 × 36 32410	7 30A SI 10 Smp Q [C] 30 × 30 905870	20 ~~30B Delco~~ ~~400~~ [ ] [C] ~~63194010~~	21 [ ] [ ]	22 [ ] [ ]
5 & 6	1 25 V+L 90 [ ] [ ] 30 × 36 262015004	2 30A Delco 15 [ ] [ ] 30 × 30 62803848	3 30A CE 30 [ ] [ ] 30 × 30 346036	4 30A CE 25 [ ] [ ] 30 × 30 346038	5 30A CE 10 [ ] [ ] 30 × 30 346047	6 25 CE 10 [ ] [ ] 30 × 30 346058	7 25 BE 7 [ ] [C] 25 × 36 HH6307	23 [ ] [ ]	24 [ ] [ ]	25 [ ] [ ]

NOTES: 718273 - Squeeze
901505 - Subject Finish Critical
901504 - " " " 406115 Check for warp
[illegible]

Check the next page for the correct answers to the quiz.

ANSWERS

1. How many jobs are scheduled for Floor 3&4?

[✓ a. 7]
b. 20
c. 2

2. How many molds should be made for the 1st job on Floor 9&10?

a. 25
b. 184
[✓ c. 95]

3. What is the flask size for the 1st job on Floor 1&2?

[✓ a. 25x30]
b. 22x22
c. 30x30

4. What is the class of iron for the 1st job on Floor 5&6?

a. 20-s
b. 25
c. 90

5. What is the casting number for the 1st job on the Hunter?

[✓ a. 121-0035]
b. 300
c. 20-s

6. How do you know that a job is a Hot Job ?

a. the square has an X through it
[✓ b. the square has a star ☆ in it]
c. the square is first on the chart

7. How many jobs are scheduled for the HUNTER?

[✓ a. 8]
b. 25
c. 31

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 2
THE CORE ROOM

ROBERT E. STONE
PROJECT DIRECTOR
205 234 6346

WRITTEN BY:
SANDRA MANN,
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205 329 8481 EXT. 81

In the following lesson on the **CORE ROOM** you will learn about the two kinds of cores used at Robinson Foundry.

First, take the quiz on the next page to see what you already know.

CORE ROOM QUIZ 1

DIRECTIONS

Circle the answer you think is correct.

The first one is done for you.

1. How is sand made into a core?
   - a. It is sifted and packed into a core box.
   - b. It is rammed and packed into a core box.
   - (c.) It is chemically bonded and packed into a core box.

2. Why are cores put in castings?
   - a. To make the surface finish good.
   - b. To make the outside dimensions accurate.
   - c. To make a hollow space inside the casting.

3. How are Airset cores made?
   - a. They are made with chemically bonded sand which hardens when air hits it.
   - b. They are made with chemically bonded sand which hardens when the heat of a cast iron core box activates the resin.

4. How can you tell if a Shell core is strong?
   - a. Weigh it
   - b. Look at the color.
   - c. Measure it.

5. How can you tell Airset and Shell cores apart by color?
   - a. Airset is yellow and brown; Shell is off-white.
   - b. Airset is off-white; Shell is yellow and brown.

6. If you needed cores that were good for detail and dimensional accuracy, which would you pick?
   - a. Airset
   - b. Shell

Most trainees don't know all the answers to the quiz you've just taken, but after you read the passages and answer the questions on the following pages, you'll know a lot more about the **CORE ROOM.**

At the end of the lesson you'll take a quiz and see your scores for both times.

CORE ROOM

The Core Room makes the cores needed for Green Sand castings. Sand is chemically bonded together and packed into a core box to form a shape. The shape, or core, is placed inside the green sand mold. When molten iron is poured into the mold, the sand part does not fill up. Instead, there is a hollow shape inside the casting in the exact shape of the core.

There are two processes used in the production of packed sand cores. One process makes an Airset core. The other process makes a Shell core.

ANSWER THE FOLLOWING QUESTIONS

DIRECTIONS

Chose the correct answer. Circle the letter of your answer.

1. What is the passage mostly about?

   a. How cores are made.
   b. Core set-up for Green Sand Castings.
   c. Airset cores.

2. What are the two types of cores made in the core room?

   a. Bonded and Packed.
   b. Airset and Shell.
   c. Molten and Hollow.

3. Why are cores needed in casting?

   a. To make a hollow space inside a casting.
   b. To make gating for Green Sand molds.
   c. To chemically bond sand.

CHECK YOUR ANSWERS ON THE NEXT PAGE.

ANSWERS

1. a. This answer is correct.

   b. This is not mentioned in the passage.
   c. Airset is mentioned; however, the passage talks about more information than just airset cores.

2. b. This answer is correct.

   a. Bonded and packed are words describing how cores are made. They do not name the two types of cores.
   c. Molten is a word which is used to describe iron. It is not about cores.
   Hollow is used to tell the shape of the inside of a shell core. It is not the type of core.

3. a. This answer is correct.

   b. This is not mentioned in the passage.
   c. To chemically bond sand is how cores are made, not why they are needed in castings.

Airset

Airset cores harden when air hits them. They are make from chemicals and sand grains mixed together and heated in the mixing machines.

Airset sand is mixed in two different-sized mixing machines. The 150 mixer prepares sand for the smaller cores. The chemical balance and temperature help the sand mixture harden quickly.

The 300 mixer prepares sand for larger cores. The sand from the 300 machine sets slower because the cores are so much bigger.

Airset cores are solid. They are generally made in bodies which are glued together at the glue-up table. The glue seams are sealed to keep the hot iron from melting the glue seam.

Airset cores are off-white in color. They are generally not designed for use in castings that need a good surface finish or a high degree of dimensional accuracy. They tend to swell as they set up. The swelling can make the dimensions of the castings be wrong and can cause defects.

Shell Core

Shell cores are made of resin coated sand. Heat bonds the grains of sand. The sand comes to Robinson with the resin aready added.

Shell cores are made in machines which have cast iron core boxes. An operator fills the core box with sand. The heat of the core box activates the resin and bonds the sand to make a core.

Shell cores can be solid or hollow. If the core is not heated long enough, there will be a hole in the bottom. Any un-bonded sand will drain out and leave a hollow core.

The color of the Shell core is an indicator of its quality. The darker the Shell core is "cooked" without burning it black, the stronger the core will be. The strongest core is a dark brown.

Shell cores are good for castings requiring detail and dimensional accuracy.

****ANSWER THE FOLLOWING QUESTIONS****

DIRECTIONS

Choose the correct answer. Circle the letter of your answer.

1. After reading the passage about Airset and Shell cores, you should be able to the difference between the cores by looking at the...

   a. size
   b. color
   c. shape

2. If you needed cores that were good for detail and dimensional accuracy, you would pick...

   a. Airset cores
   b. Shell cores

3. If you needed a very strong Shell core, which would you pick?

   a. A light yellow one
   b. An off-white one
   c. A dark brown one

4. Casting Number 9804 needs a hollow core. Which would you send to the Green Sand Pallet line?

   a. Airset
   b. Shell

5. Core Number 405926 is a very large Airset core. Which sand mixer would you use to make this core?

   a. 150
   b. 300

6. If you put resin-coated sand in a heated cast iron core box, what would you get?

   a. An Airset core
   b. A Shell core

7. After reading the lesson about the Core Room you should know that cores are...

   a. only mixed in the 300 machine.
   b. made from chemically bonded sand.
   c. always solid.

CHECK YOUR ANSWERS ON THE NEXT PAGE.

Answers

1. b. This answer is correct.

   a. The passage does not mention the size of the cores.
   b. The passage does not mention the shape of the cores.

2. b. This answer is correct.

   a. Read the last paragraph about Airset Cores. You will learn why airset cores are good for detail and dimensional accuracy.

3. c. This answer is correct.

   a. Read the passage about Shell cores. It explains that the strongest Shell cores are dark brown.
   b. Airset cores are off-white.

4. b. This answer is correct.

   a. Airset cores are solid.

5. b. This answer is correct.

   a. The 150 machine makes small cores.

6. b. This answer is correct.

   a. Airset sand does not have resin. Airset sand is heated and mixed in a mixing maching, not a core box.

7. b. This answer is correct.

   a. The 300 machine is only for large Airset, not all cores.
   c. Airset cores are solid, but Shell cores are hollow.

FOCUS ON VOCABULARY

As you were reading the lesson, did you find words you didn't know? You could have gone to the dictionary to find the meaning of the strange word.....OR you could have guessed the word by looking at the other words around it.

This is called "looking at the **CONTEXT** of a word".

CONTEXT is the rest of the sentence or paragraph.

Let's look at a sentence from the lesson and see if you can figure out the meaning of an underlined word by looking at the rest of the sentence.

> "When molten iron is poured into the mold, the sand part does not fill up."

In the sentence, molten is in front of iron. It is telling you what kind of iron is being used.

The next part of the sentence tells you that iron is poured into the mold.

You should ask yourself, "What form does iron have to be if you have to pour it?"

Your answer should be, "A liquid!"

You have figured out that molten means liquid iron. You did that by looking at the rest of the sentence and asking yourself questions.

Now, try your new skill with the questions on the next page!

DIRECTIONS

Choose the correct answer. Circle the letter of your answer.

1. What is the meaning of generally in the sentence below?

   Airset cores are generally not used in castings that need a high degree of dimensional accuracy.

   a. most of the time
   b. having high rank
   c. belonging to all persons

2. What is the meaning of bonded in the sentence below?

   Sand is chemically bonded together and packed into a core box to form a shape.

   a. a written agreement
   b. stuck together
   c. a note of debt that is due

3. What is the meaning of activates in the sentence below?

   The heat of the core box activates the resin and bonds the sand to make a core.

   a. to place on active military duty
   b. to cause something to start working

4. What is the meaning of indicator in the sentence below?

The color of a Shell core is an indicator of its quality.

a. a pointer on an instrument
b. something that points out or makes known
c. a by-product

5. What is the meaning of process in the sentence below?

One process makes an Airset core.

a. court summons
b. lines of things moving along
c. a way of doing something

CHECK YOUR ANSWERS ON THE NEXT PAGE.

ANSWERS

1. a. This answer is correct.

   b. Rank has nothing to do with castings or dimensional accuracy.

   c. The sentence is not about people or ownership.

2. b. This is the correct answer.

   a. A bond can be a written agreement; however, in the sentence bonded is before the word together. The word is not used to talk about an agreement.

   b. A bond can be a debt that is due; however, in the sentence bonded is not used to talk about debt. It is used to show how sand is put together to make a core.

3. b. This answer is correct.

   A. The word activates is used to show what the heat of the core box does. Military duty is not discussed in the sentence.

4. b. This is the correct answer.

   a. An indicator can be a pointer on an instrument; however, the sentence does not discuss instruments.

   b. The color of a Shell core shows how good it is. The color is not a by-product.

5. c. This answer is correct.

   a. A court summons can be processed; however, it has nothing to do with making Airset cores.

   b. A line of things moving along has nothing to do with making Airset cores.

You have completed the lesson.

Go on to the next page to retake the quiz you started this booklet with, or go back and review the lesson before taking the quiz.

CORE ROOM QUIZ 2

DIRECTIONS

Circle the answer you think is correct.

The first one is done for you.

1. How is sand made into a core?

    a. It is sifted and packed into a core box.
    b. It is rammed and packed into a core box.
    (c.) It is chemically bonded and packed into a core box.

2. Why are cores put in castings?

    a. To make the surface finish good.
    b. To make the outside dimensions accurate.
    c. To make a hollow space inside the casting.

3. How are Airset cores made?

    a. They are made with chemically bonded sand which hardens when air hits it.
    b. They are made with chemically bonded sand which hardens when the heat of a cast iron core box activates the resin.

4. How can you tell if a Shell core is strong?

    a. Weigh it
    b. Look at the color.
    c. Measure it.

5. How can you tell Airset and Shell cores apart by color?

    a. Airset is yellow and brown; Shell is off-white.
    b. Airset is off-white; Shell is yellow and brown.

6. If you needed cores that were good for detail and dimensional accuracy, which would you pick?

    a. Airset
    b. Shell

Check the next page for the correct answers to the quiz.

ANSWERS

1. This one is done for you.

2. c. This answer is correct.

    a. Airset cores are not used in castings that need a good surface finish; therefore, this cannot be the correct answer.
    b. The reading passage does not mention outside dimensions.

3. a. This answer is correct.

    b. This is how Shell cores are made.

4. b. This is the correct answer.

    a. The passage does not mention weighing castings.
    b. The passage does not mention measuring castings.

5. b. This answer is corect.

    a. Read the parts of the passage which tells about the color of each shell.

6. b. This is the correct answer.

    a. Read the passage about Airset cores. They swell as they set up. This can make a casting have a defect.

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 3
THE CORE ROOM

ROBERT E. STONE,
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WRITTEN BY:
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205 329 8481 EXT. 81

CORE ROOM

WORD LIST

1. CORE
2. MOLD
3. FLASK
4. SAND
5. CASTING
6. GREEN SAND
7. EPS
8. FINS

CORE ROOM

Willie works in the core room. He helps make cores to go inside a mold. The molds are placed in a flask. The sand in the mold makes the form of the casting. The casting comes from Green Sand or EPS process. Fins are found on some castings.

Circle the following words in the passage:

1. core
2. mold
3. flask
4. sand
5. casting
6. Green Sand
7. EPS
8. fins

CORE ROOM

Willie works in the _____ room. He helps make _____ to go inside a ______. The _______ are placed in a ______. The ____ in the _______ makes the form of the _________. The ___________ comes from _______ ________ or ____ process. ______ are found on some ___________.

Word List:

1. core
2. mold
3. flask
4. sand
5. casting
6. Green Sand
7. EPS
8. fins

Fill in the missing letters:

c__re
c__ __e
c__r__
__ __ re
co__ __

s__nd
s__ __d
s__n__
__ __nd
sa__ __

E___S
__ __ S
E __ __
E P __
__ P __

M__LD
M__ __D
M__ L __
__ __LD
MO__ __

DE__E__T
D__F__C__T
DEF__ __ __
__ __ __ECT
DEFE__ __

F__A__K
__ __ASK
FLA__ __
FL__SK
FL__ __K

F__N
F__ __
FI__
__ __N
F__N

CA__ __IN__
__ __ __TI__ __
C__ST__N__
C__S__I__G
CAST__ __ __

SC__ __P
S__R__P
S__ __ __P
SC__ __ __
__ __ __AP

core	care	core	cure	core
mold	mold	mill	mild	mild
scrap	scrape	scrap	script	scrap
sand	sand	send	sand	sun
fin	fan	fin	find	fin
blast	blend	blast	blow	blast
slag	slag	sling	slag	slight
safety	safe	safety	sift	safety
EPS	EPS	EPC	EPS	EPT
casting	case	casting	cast	casting
defect	defect	defeat	defeact	deflate
flask	flake	flask	fact	flask
accident	accident	accurate	accident	occure
pattern	path	pattern	petals	pattern

Words -- circle the matching words.

PREACTIVITY FOR A to Z

1. __________st
2. b________d
3. j k ______
4. x______z
5. m n _______
6. ________f g
7. o p _______
8. h ______ j
9. p ______r
10. _______v w
11. a b _______
12. _______j k
13. d _______ f
14. ________x y
15. g h _______
16. s _______ u
17. n ______ p
18. e f ________
19. h i ________
20. t u ________

PREACTIVITY FOR ALPHABETICAL ORDER

1. FLASK 1. ________________
2. ACCIDENT 2. ________________
3. CORE 3. ________________
4. SAND 4. ________________
5. PATTERN 5. ________________

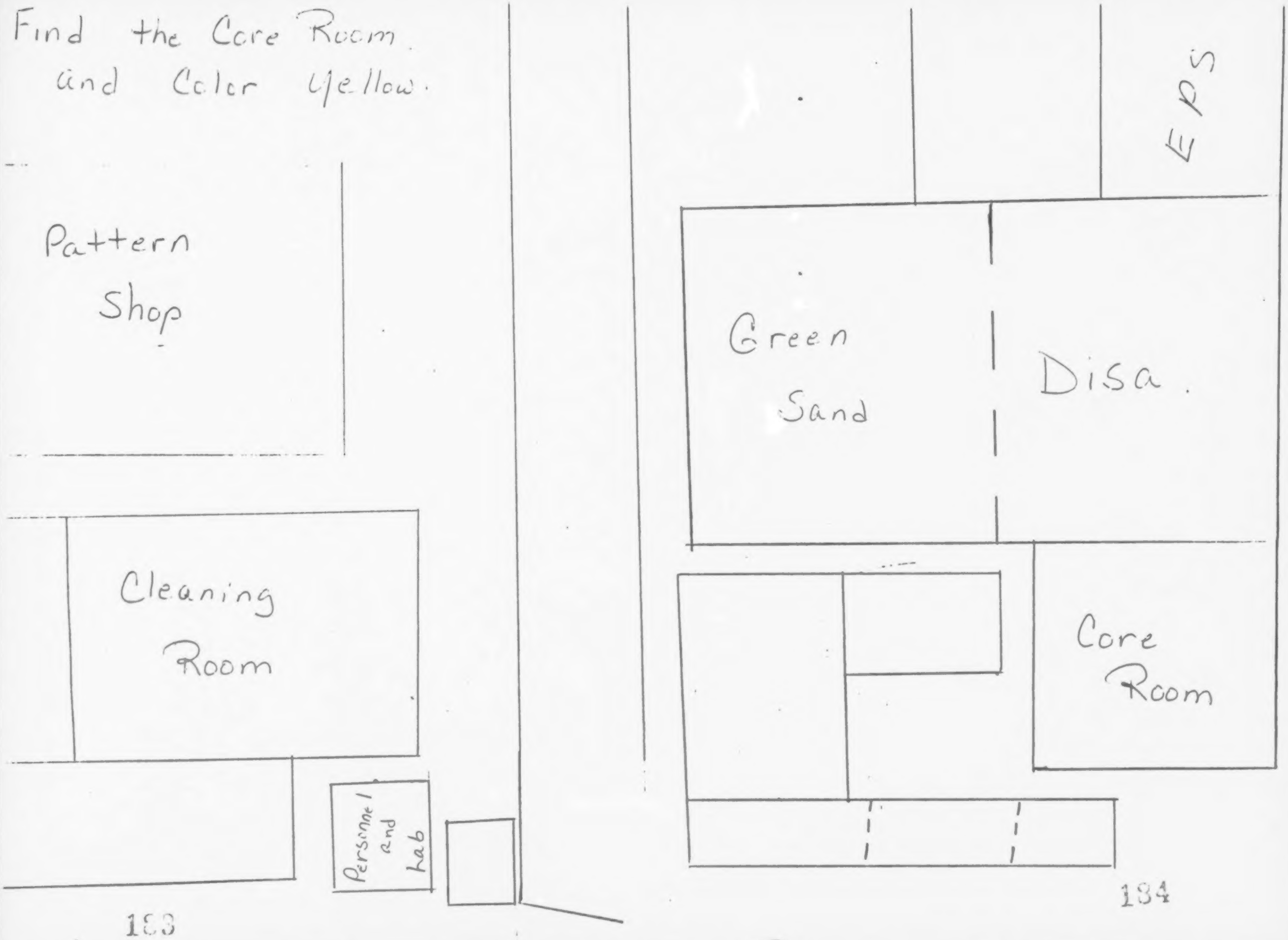
1. MOLD 1. ________________
2. SLAG 2. ________________
3. FIN 3. ________________
4. EPS 4. ________________
5. CASTING 5. ________________

1. DEFECT 1. ________________
2. SCRAP 2. ________________
3. BP 3. ________________
4. SAFETY 4. ________________
5. HAMMER 5. ________________

FIND THE DEPARTMENTS ON THE MAP

1. Personnel and Lab
2. Supply
3. Cleaning Room
4. Shipping
5. Pattern Shop
6. Iron Melting
7. EPS
8. Green Sand
9. Disa
10. Core Room
11. Storage
12. Storage
13. Maintenance
14. Security

Find the Core Room and Color Yellow.


Pattern Shop
Cleaning Room
Personnel and Lab
Green Sand
Disa
Eps
Core Room

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 4
FIGURING TIME

ROBERT E. STONE
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205 234 6346

WRITTEN BY:
SANDRA MANN,
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205 329 8481 EXT. 81

In the following lesson on **Figuring Time** you will learn how to work with time problems.

First, take the quiz on the next page to see what you already know.

TIME PROBLEMS-QUIZ 1

1. Jessie Tolison's shell core machine broke down for 44 minutes and was out of sand for 10 minutes. The power was off for 17 minutes. What is his total DOWN TIME for that day?

   a. 1 hour and 5 minutes
   b. 1 hour and 11 minutes
   c. 75 minutes
   d. none of the above

2. Derrick Spivey worked 2 hours and 37 minutes overtime on Monday and 1 hour 53 minutes overtime on Tuesday. How much is his OVER TIME for both days?

   a. 4 hours and 30 minutes
   b. 3 hours and 87 minutes
   c. 3 hours and 60 minutes
   d. None of the above

3. At 6:51 the Melt Deck ran out of iron. James McCoy needed to pour castings but he has to wait for iron. It's 8:10 before he got any iron. How long did he wait?

   a. 1 hour and 45 minutes
   b. 2 hours
   c. 1 hour and 19 minutes
   d. none of the above

4. Celso Cruz works from 10:35 pm to 6:15 am every day. How many hours is he at work?

   a. 7 hours and 40 minutes
   b. 6 hours and 35 minutes
   c. 8 hours and 10 minutes
   d. none of the above

5. Howard Marcantel goes to work at 4:40 am and gets off at 1:15 pm. He takes 45 minutes for lunch and takes two 10 minute GatorAde breaks. How many hours a day does he actually work?

   a. 7 hours and 50 minutes
   b. 8 hours
   c. 7 hours and 30 minutes
   d. none of the above

6. Jay Edmondson goes to work at 4:10 am and works 9 hours and 15 minutes. What is his quitting time?

   a. 1:45 pm
   b. 2:30 pm
   c. 1:25 pm
   d. none of the above

TIME PROBLEMS AT ROBINSON FOUNDRY

An important job skill is to be able to fill out the occupational forms used in your department. Many occupational forms are used to record the amount of work which has been done in a certain amount of time.

These forms are called PRODUCTION FORMS. In order to correctly fill out productions forms, you must be able to write clock time.

If your work is stopped for some reason, you have to write the amount of DOWN TIME. This means you must be able to add and subtract time.

This booklet will show you quick and easy ways to figure time problems in your work.

ADDING TIME

Here is an example of writing DOWN TIME on a Robinson production form:

Suppose your molding machine broke down for 15 minutes. Then the power went off for 12 minutes. Next, you took a break for 10 minutes.

What will you write for your total DOWN TIME?

Add the minutes together like this

15 minutes
12 minutes
10 minutes <—
—
37 minutes

NOW TRY THIS ONE!

It takes you 40 minutes to eat lunch. You take two 10 minute breaks. You are out of iron for 35 minutes.

What will you write for **TOTAL DOWN TIME**?

Add the minutes like this:

```
     40 minutes
     10    "
     10    "
   + 35    "
     --
     95 minutes
```

95 minutes is the right answer---however---you must write DOWNTIME in hours and minutes.

Look below to see how to do this:

Divide the minutes by 60 (minutes in an hour).

```
          1   ------>  number of hours
       ______
   60 | 95
      - 60
        --
        35    ----->  number of minutes
```

You would write 1 hour and 35 minutes for DOWN TIME.

Change these minutes into hours and minutes:

a. 85 ____________________
b. 76 ____________________
c. 92 ____________________
d. 147 ____________________
e. 65 ____________________

CHECK YOUR ANSWERS ON THE NEXT PAGE

ANSWERS

a. 1 hour and 25 minutes
b. 1 hour and 16 minutes
c. 1 hour and 32 minutes
d. 2 hour and 27 minutes
e. 1 hour and 5 minutes

If you do not understand why these answers are correct, ask your teacher for help.

MORE ADDING PROBLEMS

Suppose you worked overtime 3 afternoons this week. You worked 1 hour and 25 minutes on Monday. You worked 2 hours and 10 minutes on Tuesday. You worked 1 hour and 15 minutes on Wednesday.

How can you find out the <u>total</u> amount of overtime you have worked this week?

DO IT LIKE THIS

```
  1:25
  2:10
+ 1:15
  ----
  4:50
```

You worked 4 hours and 50 minutes

LET'S TRY ANOTHER PROBLEM

Suppose you worked 1 hour and 45 minutes overtime on Monday. Then you worked 1 hour and 45 minutes overtime on Tuesday.

How much time did you have in overtime pay?

*** If you add your time like this ***

```
  1:45
+ 1:45  <
  ----
  2:90
```

Your answer is correct,
but it just doesn't look right!

Your minutes have added up to more then an hour.
WHAT DO YOU DO NOW?

Divide the minutes by 60 (minutes in an hour)

```
      1--------> 1 hour and 30 minutes
                               ^
60 |  90
     -60
      --
      30  <
```

Now add 1 hour and 30 minutes to 2:00

```
  2:00
+ 1:30
  ----
  3:30
```

*** You have 3 hours and 30 minutes in overtime pay! ***

SUBTRACTING TIME

Let's do problems with subtracting time.

The Muller breaks down at 10:47 am. You can't run your molding machine without sand. The Muller isn't fixed until 11:15 am.

How much DOWN TIME should you write on the Molding productio sheet?

*** You could write the problem like this ***

```
   11:15
 - 10:47
   -----
```

But that won't work!
You can't subtract 47 from 15.

Look at the problem worked like this:

```
                    11:15
Borrow an hour   -   1:00
                    -----
                    10:15
```

Change the hour to 60 minutes and add back to 10:15

```
   10:15
 +   :60
   -----
   10:75
```

NOW you can subtract 10:47 and find the DOWN TIME.

```
   10:75
 - 10:47
   -----
     :28
```

*** You will write 28 minutes as your DOWN TIME. ***

Let's do a few more of these problems

1. You work in the cleaning room at a grinding booth. Today Roy Watts sent you a pallet of castings with the number 63196008. You start grinding at 2:43. By 5:06 you only had 5 castings ground.

   How long did it take you to do that work?

   a. 3 hours and 5 minutes
   b. 2 hours and 23 minutes
   c. 1 hour and 47 minutes
   d. none of the above

   (Did you remember to "borrow" 60 minutes?)

2. You work in EPS Assembly. Rick Johnson brings you a box of foam patterns to assemble. You begin at 7:00 am. Normally, you get through with this box by 7:50 am. Today you work until 8:23 am.

   How much extra time did you spend working on this box?

   a. 45 minutes
   b. 1 hour and 23 minutes
   c. 33 minutes
   d. none of the above

CHECK YOUR ANSWERES ON THE NEXT PAGE

ANSWERS

1. The correct answer is b. Work the problem like this:

Step 1. 5:06 You can't subtract this problem.
-2:43

Step 2. You have to borrow an hour from 5:06.

5:06
-1:00
4:06

Step 3. Change the hour to 60 minutes and add it back to 4:06

4:06
+ :60
4:66

Step 4. **NOW** you can subtract 2:43 from 4:66 and find the time.

4:66
- 2:43
2:23

Step 5. Write the answer as 2 hours and 23 minutes.

2. The correct answer is c. Work the problem like this:

Step 1. Set up the problem.

8:23
- 7:50

Step 2. Change 8:23 by borrowing an hour and adding it back as 60 minutes.

8:23
- 1:00
7:23

Then do this: 7:23
+ :60
7:83

Step 3. **NOW** you can subtract and find the extra time.

7:83 new finishing time
- 7:50 normal finishing time
33 minutes extra time spent of the box.

Let's look at another problem involving SUBTRACTING TIME.

Suppose you work from 6:15 am to 2:00 pm.

How long are you at work?

*** You <u>could</u> write the problem like this. ***

```
  2:00 pm
- 6:15 am
  ----
    ?
```

But that won't work!
You can't subtract a large number from a smaller number.

TRY THIS

Change your quitting time to a number that is large enough to allow you to subtract your starting time. You can do that by adding your quitting time to 12:00 noon...just like **<u>this.</u>**

```
   12:00 noon
+   2:00 pm (quitting time)    <
    -----
   14:00 pm (NEW quitting time)
```

*** NOW write the problem like this ***

```
   14:00 pm =  (don't forget to borrow) = 13:60 pm
-   6:15 am                             - 6:15 am
    ----                                  ----
                                          7:45
```

You are at work 7 hours and 45 minutes!

TRY IT AGAIN!

1. You go to work in EPS at 8:05 am. You get off early at 1:15 pm.

   How many hours did you work today?

   a. 5 hours and 10 minutes
   b. 5 hours and 20 minutes
   c. 4 hours and 55 minutes
   D. none of the above

2. You start work in the Core Room at 4:43 am and quit work at 1:25.

   How long did you work today?

   a. 9 hours and 10 minutes
   b. 8 hours and 42 minutes
   c. 8 hours and 18 minutes
   d. none of the above

3. You are working overtime at the Cleaning Room. You start work at 4:10 am and you regulary get off at 12:15 pm. However, today you work until 2:23 pm. Answer the following questions about your time at work:

   (a) How many hours did you work today?
   (b) How many hours do you work without overtime?
   (c) How much overtime did you work today?

CHECK YOUR ANSWERS ON THE NEXT PAGE

ANSWERS

1. The correct answer is a.
2. The correct answer is b.
3. The correct answer is:
    - a. 10 hours and 13 minutes
    - b. 8 hours and 5 minutes
    - c. 2 hours and 8 minutes

If you do not understand why these answers are correct, ask your teacher for help.

OTHER TIME PROBLEMS

Let's look at another type of time problem.
Sam Huntley came to work at 7:10 am. He hid behind the Core Room and took 35 minutes to eat 2 steak biscuits. He watched Robert Angle rake leaves for 30 minutes. He hid in Annette's office for 15 minutes and drank a cup of coffee. He went home at 2:45 pm.

How many hours did Sam <u>actually</u> work today?

DO IT LIKE THIS

Add the "goof-off" time---->

```
 35 minutes
 30   "
+15   "
 --
 80   "
```

Change 80 minutes to hours and minutes----> 1 hour and 20 minutes

Find how how long Sam was at Robinson--->

```
(1)      2:45 (quitting time)
     +  12:00 noon
        -----
        14:45  (new quitting time)

(2)     14:45  (new quitting time)
     -   7:10  (starting time)
        -----
         7:35  Hours at Robinson
```

Subtract the DOWNTIME (the "goof-off" time) from the hours he was at Robinson----->

```
   7:35 (hours he was at Robinson)
 - 1:20 ("goofing-off" time)
   ----
   6:15
```

Sam <u>actually</u> worked 6 hours and 15 minutes!

Let's look at another TIME PROBLEM.

1. If you go to work at 6:10 am and work 8 hours, what will be your quitting time?

DO IT LIKE THIS:

```
step 1.          6:10 am (starting time)
               + 8:00 (hours at work)
                 ----
                14:10 pm (quitting time)


step 2.         14:10 pm
               -12:00 noon
                -----
                 2:10 pm (quitting time in clock time)
```

Your quitting time is 2:10!

TRY THIS ONE!

You come into EPS at 5:30 and start work. Joe Clark comes by and tells you that you have to work 10 hours and 45 minutes today.

This if fine with you because you need the extra overtime; however, you carry riders in your car. They only have to work 8 hours today.

1. What time will you tell your riders that you will be leaving work?
   - a. 3:76 pm
   - b. 2:45 pm
   - c. 4:15 pm

2. If your riders went to work at 5:30 and worked 8 hours, how long will they have to wait for you after they get off work?
   - a. 2 hours and 45 minutes
   - b. 3 hours
   - c. 4 hours and 15 minutes

CHECK YOUR ANSWERS ON THE NEXT PAGE

ANSWERS

1. The correct answer is b.
2. The correct answer is a.

If you do not understand why these answers are correct, ask your teacher for help.

You have completed the lesson.

Go to the next page to take a practice quiz to see how well you have learned to figure time.

Check your answers to see if you need to review the lesson before you take the last quiz.

TIME PROBLEMS Practice Quiz

1. James Baggett's molding machine broke down for 27 minutes. The Muller stopped for 35 minutes and he couldn't get sand. A pattern change took 25 minutes.

   What is his total DOWNTIME for the day?

   a. 1 hour and 10 minutes
   b. 1 hour and 27 minutes
   c. 1 hour
   d. none of the above

2. Charles Mather worked 1 hour and 53 minutes overtime on Wednesday and 2 hours and 43 minutes overtime on Thursday.

   How much is his overtime for both days?

   a. 4 hours and 36 minutes
   b. 4 hours and 15 minutes
   c. 3 hours and 67 minutes
   d. none of the above

3. Harry Brown runs the Hunter molding machine. He had to wait from 6:54 am to 8:17 for sand.

   How long did he wait?

   a. 2 hours and 3 minutes
   b. 1 hour and 23 minutes
   c. 2 hours
   d. none of the above

4. Rose Ware works from 4:40 am to 1:13 pm.

   How many hours a day is she at work?

   a. 9 hours and 13 minutes
   b. 7 hours and 45 minutes
   c. 8 hours and 33 minutes
   d. none of the above

5. Wayne Browning goes to work at 5:48 am and gets off at 2:10 pm. He takes 35 minutes for lunch and takes two 15 minute breaks.

How many hours a day does he actually work?

a. 6 hours and 13 minutes
b. 7 hours and 17 minutes
c. 8 hours and 22 minutes
d. none of the above

6. Tommy Green goes to work at 4:17 am and works 10 hours and 35 minutes.

What is his quitting time?

a. 3:10 pm
b. 2:52 pm
c. 2:18 pm
d. none of the above

****CHECK YOUR ANSWERS ON THE NEXT PAGE****

ANSWERS

1. The correct answer is b.
2. The correct answer is a.
3. The correct answer is b.
4. The correct answer is c.
5. The correct answer is b.
6. The correct answer is b.

If you missed many of these questions, ask your teacher to help you find the places in the lesson you need to review.

If you are ready, go the the next page and retake the quiz you took when you started this booklet.

TIME PROBLEMS-QUIZ 2

1. Jessie Tolison's shell core machine broke down for 44 minutes and was out of sand for 10 minutes. The power was off for 17 minutes. What is his total DOWN TIME for that day?

   a. 1 hour and 5 minutes
   b. 1 hour and 11 minutes
   c. 75 minutes
   d. none of the above

2. Derrick Spivey worked 2 hours and 37 minutes overtime on Monday and 1 hour 53 minutes overtime on Tuesday. How much is his OVER TIME for both days?

   a. 4 hours and 30 minutes
   b. 3 hours and 87 minutes
   c. 3 hours and 60 minutes
   d. None of the above

3. At 6:51 the Melt Deck ran out of iron. James McCoy needed to pour castings but he has to wait for iron. It's 8:10 before he got any iron. How long did he wait?

   a. 1 hour and 45 minutes
   b. 2 hours
   c. 1 hour and 19 minutes
   d. none of the above

4. Celso Cruz works from 10:35 pm to 6:15 am every day. How many hours is he at work?

   a. 7 hours and 40 minutes
   b. 6 hours and 35 minutes
   c. 8 hours and 10 minutes
   d. none of the above

5. Howard Marcantel goes to work at 4:40 am and gets off at 1:15 pm. He takes 45 minutes for lunch and takes two 10 minute GatorAde breaks. How many hours a day does he actually work?

   a. 7 hours and 50 minutes
   b. 8 hours
   c. 7 hours and 30 minutes
   d. none of the above

6. Jay Edmondson goes to work at 4:10 am and works 9 hours and 15 minutes. What is his quitting time?

   a. 1:45 pm
   b. 2:30 pm
   c. 1:25 pm
   d. none of the above

ANSWERS

1. The correct answer is b.
2. The correct answer is a.
3. The correct answer is c.
4. The correct answer is a.
5. The correct answer is c.
6. The correct answer is c.

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 5
THE CLEANING ROOM

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WRITTEN BY:
BETH MAXWELL,
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CLEANING ROOM

WORD LIST:

1. Cleaning Room
2. grind
3. casting
4. core
5. sand
6. mold
7. fins
8. Green Sand
9. EPS
10. defects
11. scrap
12. safety
13. Jessie

CLEANING ROOM READING

Jessie works in the cleaning room in the foundry. His job is to grind castings to finish casting for shipping. The core and sand have already been removed from mold of casting. Jessie must be very careful with fins on castings. They can easily break off. The cleaning room puts finishing touches on castings from Green Sand as well as EPS. In the cleaning room Jessie must notice castings to make sure there is no defects. Defects on castings means the castings must be considered scrap and must be remelted. safety is very important in the cleaning room. There is blowing particles from large blowers in the cleaning room. There is a great deal of noise in the cleaning room. A worker in the cleaning room must wear safety glasses, earplugs, and steel toed shoes.

Circle the words in the reading above:

1. cleaning room
2. grind
3. casting
4. core
5. sand
6. mold
7. fins
8. Green Sand
9. EPS
10. defects
11. scrap
12. safety
13. Jessie

Cleaning Room Reading

Fill in missing words:

Jessie works in the _ _ _ _ _ _ _ _ room in the foundry. His job is to _ _ _ _ _ _ _ _ _ _ _ _ _ to finish _ _ _ _ _ _ _ for shipping. The _ _ _ _ and _ _ _ _ have already been removed from _ _ _ _ of _ _ _ _ _ _ _ . Jessie must be careful with _ _ _ _ on _ _ _ _ _ _ _ _ . They can easily break off. The _ _ _ _ _ _ _ _ room puts finishing touches on _ _ _ _ _ _ _ _ from _ _ _ _ _ _ _ _ _ as well as _ _ _ . In the _ _ _ _ _ _ _ _ room Jessie must notice _ _ _ _ _ _ _ _ to make sure there is no _ _ _ _ _ _ _ _ _ _ _ _ on _ _ _ _ _ _ _ _ means they must be considered _ _ _ _ _ and must be remelted. _ _ _ _ _ _ is very important in the _ _ _ _ _ _ _ _ room. There is blowing particles from large blowers in the _ _ _ _ _ _ _ room. There is a great deal of noise in the _ _ _ _ _ _ _ _ room. A worker in the cleaning room must wear _ _ _ _ _ _ glasses, earplugs, and steel toed shoes.

Fill in missing:

__ __ __ an __ __ __ r__ __ m
cl __ __ ni __ g __ o __ m
c __ e __ n __ n __ ro __ __
__ __ __ ani __ __ __ __ om
__ l __ a __ i __ g __ o __ m

g__ i __d
__ __ i __ __
__ r __n __
__ __ __nd
gri__ __

__ __ __ting
c__ __ t __ __ g
c__s__i__g
__ __ __t__ __g
cas__ __ __ __

c__r__
__ __re
co__ __
c__ __e
__ o__e
__ or__

s__ __d
s__ n__
__ __nd
sa__ __
__an__

m__l__
__ __ld
mo__ __
m __ __d
__ol__

__ __n
f__n
f__ __
__ in
__ i__

Gr__ __n S__n__
G__ __ __n S__ __d
G__e__n S__n__
__ __ __en Sa__ __
Gre__ __ __ __ __d

PREACTIVITY FOR A to Z

1. __________st
2. b_________d
3. j k ______
4. x______z
5. m n _______
6. ________f g
7. o p _______
8. h ______ j
9. p ______r
10. _______v w
11. a b _______
12. _______j k
13. d _______ f
14. ________x y
15. g h _______
16. s _______ u
17. n ______ p
18. e f ________
19. h i ________
20. t u ________

fn:Beth\alpha

PREACTIVITY FOR ALPHABETICAL ORDER

1. FLASK	1. ________________
2. ACCIDENT	2. ________________
3. CORE	3. ________________
4. SAND	4. ________________
5. PATTERN	5. ________________

1. MOLD	1. ________________
2. SLAG	2. ________________
3. FIN	3. ________________
4. EPS	4. ________________
5. CASTING	5. ________________

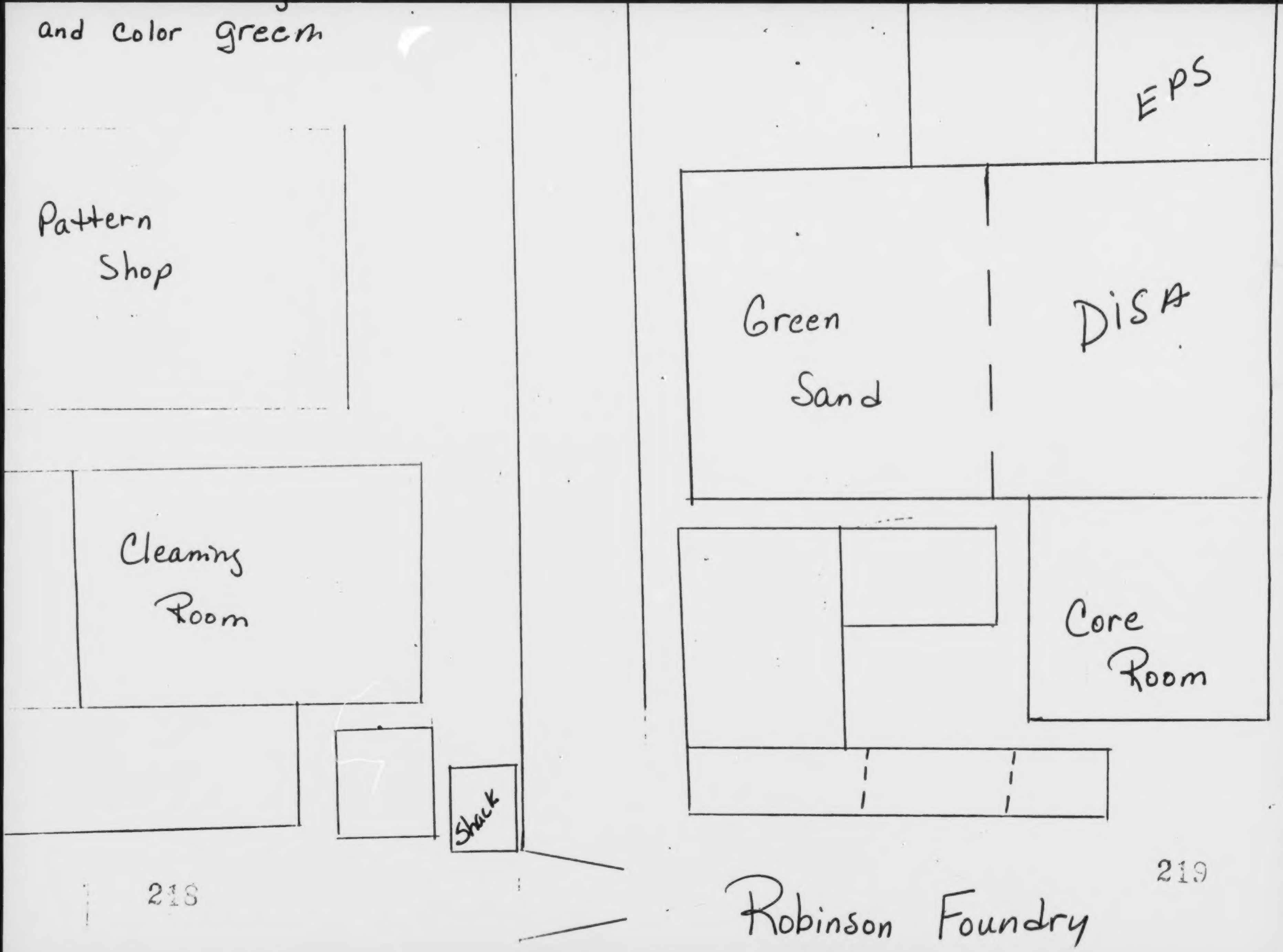
1. DEFECT	1. ________________
2. SCRAP	2. ________________
3. BP	3. ________________
4. SAFETY	4. ________________
5. HAMMER	5. ________________

FN:BETH\ALPHA2

FIND THE DEPARTMENTS ON THE MAP

1. Personnel and Lab
2. Supply
3. Cleaning Room
4. Shipping
5. Pattern Shop
6. Iron Melting
7. EPS
8. Green Sand
9. Disa
10. Core Room
11. Storage
12. Storage
13. Maintenance
14. Security

and color green


EPS
Pattern Shop
Green Sand
DISA
Cleaning Room
Core Room
Shack
Robinson Foundry

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 6
THE EPS PROCESS

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WRITTEN BY:
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In the following lesson on **The EPS Process** you will learn how EPS castings are made.

First, take the quiz on the next 2 pages to see what you already know.

EPS--Quiz 1

DIRECTIONS

Circle the answer you think is correct. The first one is done for you.

1. What does EPS mean?

   a. Exothermic Polystyrene Styrofoam
   b. Expandable Process Styrofoam
   {c.} Evaporated Polystyrene System

2. How old is the "lost foam" process?

   a. over 3000 years old
   b. over 300 years old
   c. over 30 years old

3. What are EPS patterns made of?

   a. excess styrofoam
   b. expandable polystyrene beads
   c. iron, aluminum, plastic, or wood.

4. Which of the following is an important part of the foam assembler's job?

   a. Making a strong glue seam between the pattern and the gating.
   b. Making sure the pattern is completly covered by the coating.
   c. Setting the sprue correctly.

5. Why are EPS patterns dipped in a coating?

   a. To keep the styrofoam from melting.
   b. To eliminate mold wall movement.
   c. To keep the iron from touching the sand when the iron is poured.

6. Why is EPS called "Lost Foam"?

   a. Because EPS castings have fewer defects and have "lost" the need for grinding.
   b. Because the pattern evaporates when the molten iron hits it.
   c. Because EPS castings have "lost" the extra metal such as the parting line.

7. Why are EPS castings better than Green Sand castings?

   a. Tolerance bands are higher.
   b. Better dimensional accuracy
   c. Sand binders eliminate gas defects.

Most trainees do not know all the answers to the quiz you've just taken, but after you read the passage and answer the questions on the following pages, you'll know a lot more about the EPS process.

At the end of the lesson you'll take a quiz and see your scores for both times.

EPS...The "Lost Foam" Process

EPS stands for Evaporated Polystern System. This new way of making castings was invented by H. F. Shroyer in 1958. Castings are made by pouring molten metal into styrofoam patterns.

This is a new way of making castings. The Green Sand way of making castings is thousands of years old.

Robinson began making EPS castings in 1984. The process is still new, and Robinson is still making improvements,

ANSWER THESE QUESTIONS

DIRECTIONS

Circle the letter of your answer choice.

1. What is the passage mainly about?

   a. EPS is a new way of making castings.
   b. H.F. Shroyer invented EPS in 1958
   c. EPS castings are made out of styrofoam.

2. When did Robinson start making EPS Castings?

   a. 1958
   b. 1984
   c. 1989

CHECK YOUR ANSWERS ON THE NEXT PAGE

ANSWERS

1. a. This is the correct answer.

   b. While this is true, other information is discussed in the passage.
   c. While this is true, other information is discussed in the passage.

2. b. This is the correct answer.

   a. G.F. Shroyer invented EPS in 1958. Robinson did not begin making EPS castings until 1984.
   c. This is an incorrect date.

OUTLINE OF THE EPS PROCESS

EPS patterns are made from expandable polystyrene beads. The beads are heated and injected into a mold. The heat makes the beads puff up and stick together. This process makes foam pattern pieces in the shape of castings.

Robinson does not make EPS patterns. They buy them from different companies. When the pieces come to EPS Receiving and Inspection, the Robinson worker weighs them. The patterns are sent to Foam Assembly.

The workers in Foam Assembly must first check the pattern pieces for defects. Next, the workers must glue together pattern pieces and attach the gating. The glue is a 'hot melt adhesive". The glue seam between the pattern piece and the gating must be very strong. To make a good seam, the glue must be between 260-290 degrees in temperature.

Next the patterns go to the Dipping Area. The patterns are dipped in a refractroy coating. The coating will keep the iron from touching the sand when the casting is poured. The coated patterns are put in a dryer. Each piece is weighed after dipping and after drying.

The patterns go to the Cluster Table. The patterns are glued together into groups called clusters.

The patterns clusters are moved to Molding. The clusters are put into a special flask and covered with unbonded sand.

Next, the flasks move around to the Pouring Station. Molten iron is poured into the flasks. The hot iron hits the foam pattern and evaporates, or melts, it. This is why the EPS process is called "lost foam. The foam is "lost" when the iron hits it. The metal then fills the hole left by the pattern.

After pouring, the flasks move to Shakeout. The castings are removed from the sand and sent to the Cleaning Room. The sand in cooled for reuse in the process.

ANSWER THE QUESTIONS ON THE FOLLOWING PAGE

DIRECTIONS

Circle the answer you think is correct. The first on is done for you.

1. How are EPS patterns made?
   {a} Expandable polystyrene beads are heated and injected into a mold.
   b. Wood masters are cut on the lathe in the pattern shop.
   c. The bead collapse is filled into the mold.

2. According to the passage, if you worked in Receiving, what would be your job responsibility?
   a. gluing the gating
   b. assembling the patterns
   c. weighing the patterns

3. After reading this passage, you should know that an important part of an Assembler's job is to
   a. weigh the pattern pieces
   b. keep the glue temperature within specification
   c. sand the gating edges

4. According to the passage, why is the coating important?
   a. It keeps the gating from melting.
   b. It keeps the iron from touching the sand.
   c. It keeps the glue seam from melting.

5. According the passage, if you worked in Dipping, which of the following skills would you need?
   a. To be able to fill out a time sheet.
   b. To be able to read a weighing scale.
   c. To be able to read a Zahn scale.

6. After reading the passage, you should know that a cluster is the
   a. gating glued on correctly
   b. patterns glued together
   c. refractory coating

7. Which sand is used in EPS flasks?

   a. bonded
   b. unbonded

8. Why is EPS called "Lost Foam"?

   a. The hot iron evaporates, or melts, the foam.
   b. The castings have "lost" the extra metal such as the parting line.
   c. The castings have "lost" the need for grinding.

9. According to the passage, which of the following tells how iron makes an EPS casting?

   a. It melts the refractory coating.
   b. It fills the hole left by the evaporated pattern.
   c. It moves thru the gating and then through the sprue.

CHECK YOUR ANSWERS ON THE NEXT PAGE

ANSWERS

1. a. This answer is correct.
    - b. This is the way Green Sand patterns are made. This is not mentioned in the passage.
    - c. This is false information.
2. c. This answer is correct.
    - a. This is the job of the Assembly Room.
    - b. This is the job of the Assemlby Room.
3. b. This answer is correct. The assembler must make a good glue seam. A good glue seam requires glue that is kept withing the temperature specifications.
    - a. Workers in Receiving do this job.
    - b. This was not mentioned in the passage.
4. b. This answer is correct.
    - a. This was not mentioned in the passage.
    - b. This was not mentioned in the passage.
5. b. This answer is correct. The worker must weigh the patterns after dipping and after drying; therefore, the worker must be able to read weighing scales.
    - a. This was not mentioned.
    - b. The Zahn cup measures paint thickness. It was not mentioned in class.
6. b. This answer is correct.
    - a. This is incorrect.
    - b. This is incorrect.
7. b. This answer is correct.
    - a. Green Sand molds use bonded sand.
8. a. This answer is correct.
    - b. Even though the EPS castings have lost extra metal, this is not why they are called "lost foam".
    - c. Some EPS castings have to be ground; therefore, this answer is incorrect.
9. b. This answer is correct.
    - a. This is false information.
    - c. This is not mentioned in the passage.

WHY EPS CASTINGS ARE BETTER

EPS castings have a very good surface finish. EPS castings have cleaner surfaces and cleaner inside spaces.

EPS casting have better detail and dimensional accuracy. Dimensions are the measurements of length, width, and thickness of a casting. EPS casting dimensions are easier to control than Green Sand.

EPS castings have fewer defects than Green Sand. Because EPS sand does not have binders and the patterns do not have cores, EPS castings do not have gas porosity defects. The unbonded sand keeps the EPS casting from having shrinkage defects.

EPS casting have a lower finishing cost. The castings do not have extra metal on them that has to be ground off. The castings do not require as much machining as Green Sand castings.

THE FUTURE OF EPS

Today Robinson is a leader in the EPS process. They make more grey iron castings by lost foam than any other independent foundry in the world. Foundry owners from 22 different countries have come to Alex. City to see the EPS process. The future looks bright.

ANSWER THESE QUESTIONS

DIRECTIONS

Fill in the blanks with words from the passage.

The first one is done for you.

1. EPS castings generally have better __surface__ finish and have cleaner ________________ spaces.

2. Castings measurements of length, width, and thickness are called ________________.

3. Cleaning room cost are ____________ with EPS because extra ______________ doesn't have to be ground off.

4. EPS castings don't have ______________ ______________ defects because the sand doesn't have binders.

5. Because EPS castings don't have cores, the castings do not have gas porosity ________________.

6. Because EPS sand is ________________, EPS castings do not have shrinkage defects.

7. EPS casting ______________ are easier to control than Green Sand.

8. Robinson makes more "lost foam" castings than any other independent foundry in the ________________.

MATCH THE WORDS TO THEIR MEANING

DIRECTIONS

Put the number of the word in front of the correct meaning.

1. glue
2. dimension
3. Receiving
4. Lost Foam
5. coating
6. EPS
7. EPS pattern
8. Robinson
9. flask
10. cluster

___Holds the cluster for the iron pouring
___Keeps iron from touching the sand
___another name for EPS
___groups of EPS patterns glued together
___Evaporated Polystryene System
___hot melt adhesive
___length, width, thickness of a casting
___They weigh EPS patterns
___Makes more EPS castings than anyone else
___Made out of Expandable Polystyrene Beads

CHECK YOUR ANSWER ON THE NEXT PAGE

ANSWERS

FILL IN THE BLANKS

1. surface, inside
2. dimensions
3. lower, metal
4. gas porosity
5. defects
6. unbonded
7. dimensions
8. world

MATCHING

9
5
4
10
6
1
2
3
8
7

You have completed the lesson.

Go on to the next page to retake the quiz you started this booklet, or go back and review the lesson before taking the quiz.

EPS--Quiz 2

DIRECTIONS

Circle the answer you think is correct.

1. What does EPS mean?

   a. Exothermic Polystyrene Styrofoam
   b. Expandable Process Styrofoam
   c. Evaporated Polystyrene System

2. How old is the "lost foam" process?

   a. over 3000 years old
   b. over 300 years old
   c. over 30 years old

3. What are EPS patterns made of?

   a. excess styrofoam
   b. expandable polystyrene beads
   c. iron, aluminum, plastic, or wood.

4. Which of the following is an important part of the foam assembler's job?

   a. Making a strong glue seam between the pattern and the gating.
   b. Making sure the pattern is completly covered by the coating.
   c. Setting the sprue correctly.

5. Why are EPS patterns dipped in a coating?

   a. To keep the styrofoam from melting.
   b. To eliminate mold wall movement.
   c. To keep the iron from touching the sand when the iron is poured.

6. Why is EPS called "Lost Foam"?

   a. Because EPS castings have fewer defects and have "lost" the need for grinding.
   b. Because the pattern evaporates when the molten iron hits it.
   c. Because EPS castings have "lost" the extra matal such as the parting line.

7. Why are EPS castings better than Green Sand?

   a. Tolerance bands are higher.
   b. Better dimensional accuracy.
   c. Sand binders eliminate gas defects.

CHECK THE NEXT PAGE FOR THE CORRECT ANSWER TO THE QUIZ

ANSWERS

1. c
2. c
3. b
4. a
5. c
6. b
7. b

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 7
GREEN SAND

ROBERT E. STONE
PROJECT DIRECTOR,
205 234 6346 EXT.6217

WRITTEN BY:
BETH MAXWELL,
INSTRUCTOR
205 329 8481 EXT.81

PALLET LINE

WORD LIST

1. Pallet line
2. Shake-out
3. Castings
4. Sand
5. Core
6. Mold
7. Green Sand
8. EPS
9. Fins
10. Product

PALLET LINE READING

Frank works in the Pallet Line or green sand process. He works on shake-out line. All the castings come out of shake-out machine for Frand to remove excess sand. The core of castings also comes out of the machine. The sand holds together to form mold of casting. The green sand process is done through pallet line. The process uses sand other than foam like in EPS. Fins must be added to castings for finished product. The product must be done completely to be taken by the customer.

Circle the following words in the reading:

1. Pallet line
2. shake-out
3. castings
4. sand
5. core
6. mold
7. Green Sand
8. EPS
9. fins
10. product

Fill in missing words:

Frank works in the _ _ _ _ _ _ _ _ _ _. He works on _ _ _ _ _-_ _ _. All the _ _ _ _ _ _ _ _ come out of _ _ _ _ _-_ _ _ machine for Frank to remove excess _ _ _ _. The _ _ _ _ of _ _ _ _ _ _ _ also comes out of machine. The _ _ _ _ holds together to form _ _ _ _, of _ _ _ _ _ _ _. The _ _ _ _ _ _ _ _ _ process is done through _ _ _ _ _ _ _ _ _ _ The process uses _ _ _ _ other than foam as in _ _ _. _ _ _ _ must be checked on _ _ _ _ _ _ _ _. The _ _ _ _ _ _ _ must be done completely to be taken by the customer.

p__ __l__ t __i__e
pall__ __ __ __ __e
p__ l__e__ l__ __ __
pal__ __ __ l__ __ __
__ __ __let __ __ne
pall__t l__ne

sh__k__-__u__
s__ a __e-__ut
sha__ __-__ __t
sh__ __e-__ ut
sha__ __-ou__

__ __ __ting
c__ __t__ __g
c__ s__i __g
__ __ __ting
cas__ __ __ __

s__ __d
s__n__
__ __nd
sa__ __
SAN__

c__r__
__ __re
co__ __
c__ __ e
__o__e
__or__

m__l__
__ __ ld
mo__ __
m__ __d
__ol__

E __ __
E __ S
__ __ S
__ P __
__ P S

__ __N
F__N
F__ __
__ I__
__IN

PREACTIVITY FOR A to Z

1. __________st
2. b________d
3. j k ______
4. x______z
5. m n _______
6. ________f g
7. o p _______
8. h ______ j
9. p ______r
10. _______v w
11. a b _______
12. _______j k
13. d _______ f
14. ________x y
15. g h _______
16. s _______ u
17. n ______ p
18. e f ________
19. h i ________
20. t u ________

fn:Beth\alpha

PREACTIVITY FOR ALPHABETICAL ORDER

1. FLASK	1. ______________
2. ACCIDENT	2. ______________
3. CORE	3. ______________
4. SAND	4. ______________
5. PATTERN	5. ______________

1. MOLD	1. ______________
2. SLAG	2. ______________
3. FIN	3. ______________
4. EPS	4. ______________
5. CASTING	5. ______________

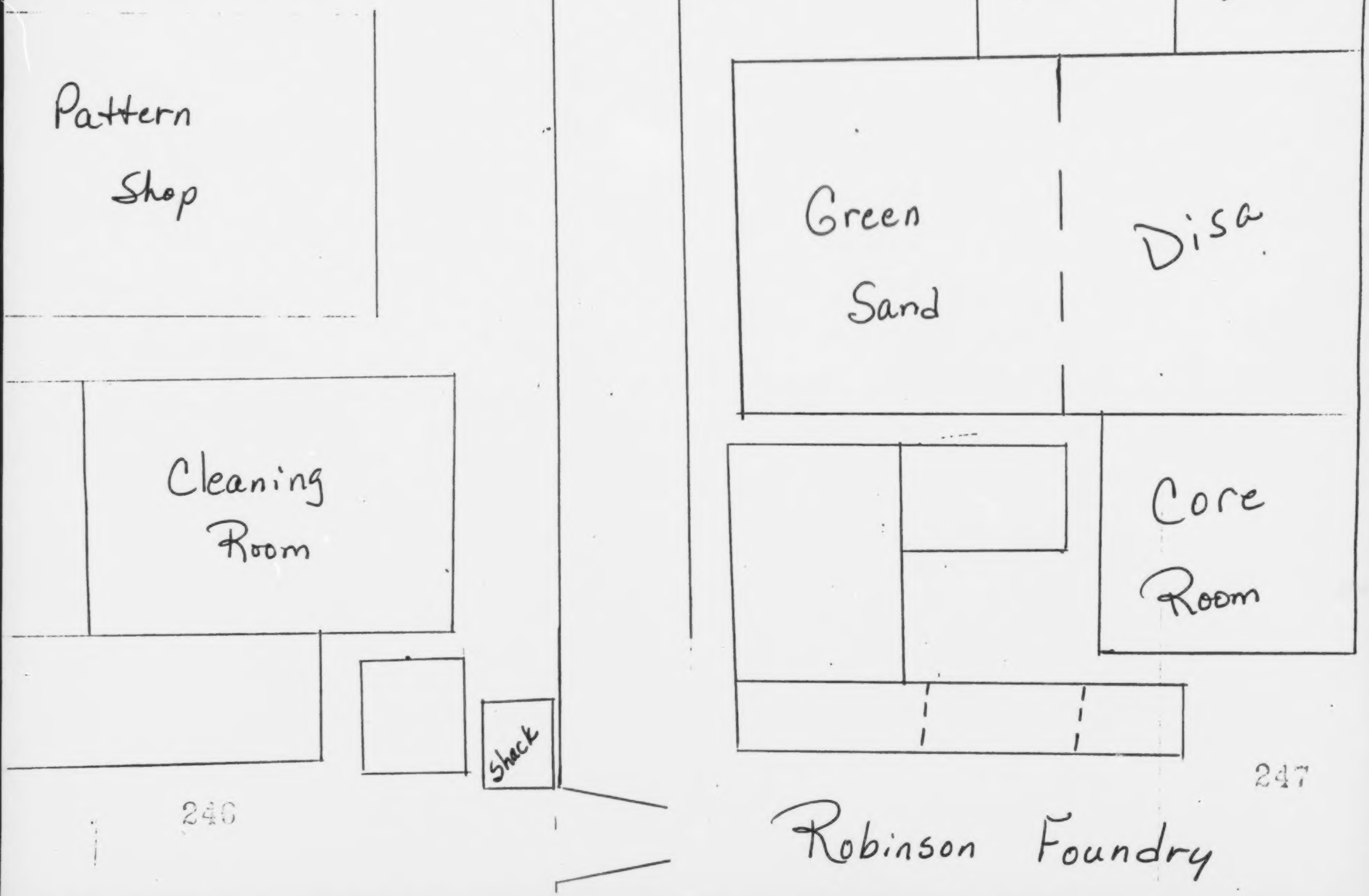
1. DEFECT	1. ______________
2. SCRAP	2. ______________
3. BP	3. ______________
4. SAFETY	4. ______________
5. HAMMER	5. ______________

FN:BETH\ALPHA2

FIND THE DEPARTMENTS ON THE MAP

1. Personnel and Lab
2. Supply
3. Cleaning Room
4. Shipping
5. Pattern Shop
6. Iron Melting
7. EPS
8. Green Sand
9. Disa
10. Core Room
11. Storage
12. Storage
13. Maintenance
14. Security

Color green.


IRON
EPS
Pattern Shop
Green Sand
Disa
Cleaning Room
Core Room
Shack

Robinson Foundry

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 8
EPS-1

ROBERT E. STONE,
PROJECT DIRECTOR
205 234 6346 EXT 6217

WRITTEN BY:
BETH MAXWELL,
INSTRUCTOR
205 329 8481 EXT 81

EPS WORD LIST

1. EPS
2. PROCESS
3. FOUNDRY
4. CASTING
5. FOAM
6. POURED
7. SAND
8. FLASK
9. IRON
10. DUMP

EPS READING

Quinton works in EPS at Robinson Foundry. EPS is the process in the Foundry that uses styrofoam to make castings. The foam is placed inside the flask. The sand is poured over the foam from an automatic sand dump. After the dump packs the sand, then the iron is poured through a sprue into the foam. The foam evaporates when iron is poured into the flask.

Circle these words in the reading:

1. EPS
2. process
3. Foundry
4. casting
5. foam
6. poured
7. sand
8. flask
9. iron
10. Quinton
11. dump

EPS READING

_ _ _ _ _ _ _ works in _ _ _. _ _ _ is the _ _ _ _ _ _ in the _ _ _ _ _ _ _ that uses styrofoam to make _ _ _ _ _ _ _ _ . The _ _ _ _ is placed inside the _ _ _ _ _. The _ _ _ _ is _ _ _ _ _ _ over the _ _ _ _ from an automatic _ _ _ _ dump. After the _ _ _ _ packs the _ _ _ _ then the _ _ _ _ is _ _ _ _ _ _ through a sprue into the _ _ _ _. The frame exaporates when the _ _ _ _ is _ _ _ _ _ _ into the _ _ _ _ _ .

Fill in the following words:

1. EPS
2. process
3. Foundry
4. casting
5. foam
6. poured
7. sand
8. flask
9. iron
10. Quinton
11. dump

EPS

Fill in the missing letters:

__ P __
__ P S
__ __ S
E __ __
__ __ __

F __ u __ d __ y
F __ __ __ d __ __
__ o __ n __ r __
__ __ __ n d __ __
__ __ __ __ d __ __

f __ a __
f __ __ m
__ __ a __
__ o __ m
__ __ a __

p__ o __ e __ s
p __ __ c __ __ s
__ r __ c __ s __
__ __ __ c __ __ __
p __ __ __ __ __ __ s

c __ s t __ n __
c __ __ t __ __ g
__ __ s __ i __ __
__ a __ t __ n __
c a __ __ __ __ g

__ o __ r __ d
__ __ __ r __ __
p __ __ __ __ d
p __ u __ e __
p __ __ r __ __

f __ a __ __
f l __ __ k
__ l __ s __
__ __ a __ k
__ __ __ s __

__ r __ n
__ __ o __
i __ o __
i __ __ __
__ r __ __

PREACTIVITY FOR A to Z

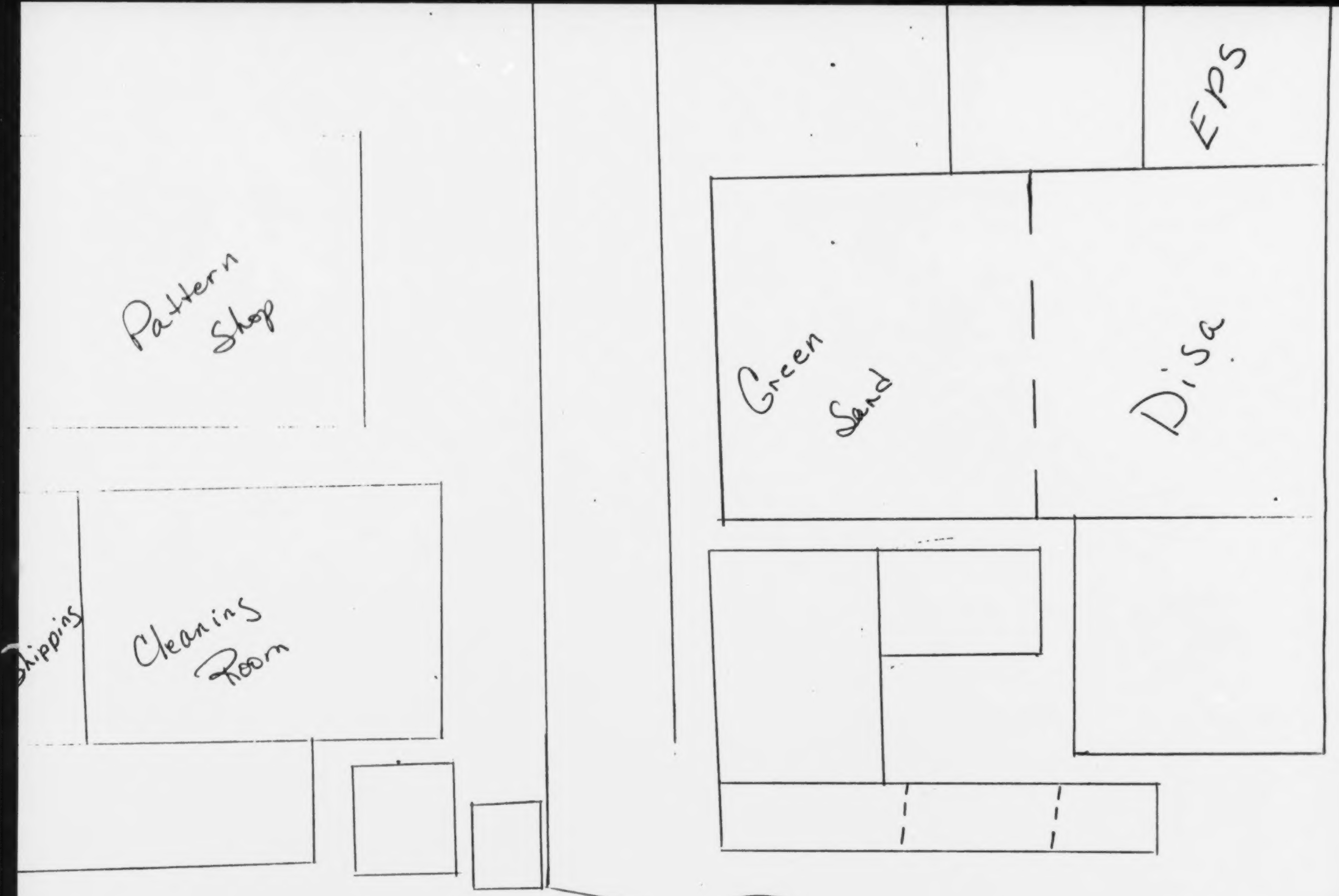
1. __________st
2. b________d
3. j k ______
4. x______z
5. m n _______
6. ________f g
7. o p _______
8. h ______ j
9. p ______r
10. _______v w
11. a b _______
12. _______j k
13. d _______ f
14. ________x y
15. g h _______
16. s _______ u
17. n ______ p
18. e f ________
19. h i ________
20. t u ________

PREACTIVITY FOR ALPHABETICAL ORDER

1. FLASK 1. ____________
2. ACCIDENT 2. ____________
3. CORE 3. ____________
4. SAND 4. ____________
5. PATTERN 5. ____________

1. MOLD 1. ____________
2. SLAG 2. ____________
3. FIN 3. ____________
4. EPS 4. ____________
5. CASTING 5. ____________

1. DEFECT 1. ____________
2. SCRAP 2. ____________
3. BP 3. ____________
4. SAFETY 4. ____________
5. HAMMER 5. ____________


Pattern Shop
Shipping
Cleaning Room
Green Sand
Disa
EPS

Robinson Foundry

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 9
EPS-2

ROBERT E. STONE,
PROJECT DIRECTOR
205 234 6346 EXT 6217

WRITTEN BY:
BETH MAXWELL,
INSTRUCTOR
205 329 8481 EXT 81

EPS READING-2 WORD LIST

1. EPS
2. foam
3. department
4. pattern
5. sprue
6. sand
7. iron
8. cluster
9. flask
10. assembly

EPS READING-2

In EPS the styrofoam patterns are ordered from other companies. The patterns are delivered to assembly at Robinson Foundry. In assembly the pieces are glued together and then sent up to EPS department. In the department the foam is dipped in a mixture to keep the sand and foam separate. Then the foam is put in a cluster to place in the flask. A cone shaped foam piece called a sprue is glued to the cluster. The sprue is attached to the cluster before sand is dumped in the flask. After the sand is packed, then the iron is poured into the sprue and runs into the foam. The foam evaporates as soon as the hot iron hits it. The casting is formed by the pattern made in the sand.

Circle the following words in reading:

1. EPS
2. foam
3. department
4. pattern
5. sprue
6. sand
7. iron
8. cluster
9. flask
10. assembly

EPS READING-2

In _ _ _ the styrofoam _ _ _ _ _ _ _ _ are ordered from other companies. The _ _ _ _ _ _ _ _ are delivered to _ _ _ _ _ _ _ _ at Robinson Foundry. In _ _ _ _ _ _ _ _ the pieces are glued together and then sent up to _ _ _ _ _ _ _ _ _ _ _ _ _ . In the _ _ _ _ _ _ _ _ _ _ the _ _ _ _ is dipped in a mixture to keep the _ _ _ _ and _ _ _ _ separate. Then the _ _ _ _ is put in a _ _ _ _ _ _ _ to place in the _ _ _ _ _ . A cone shaped _ _ _ _ piece called a _ _ _ _ _ is glued to the _ _ _ _ _ _ _ . The _ _ _ _ _ is attached to the _ _ _ _ _ _ _ before _ _ _ _ is dumped in the _ _ _ _ _ . After the _ _ _ _ is packed then the _ _ _ _ is poured into the _ _ _ _ _ and runs into the _ _ _ _ . The _ _ _ _ evaporates as soon as the hot _ _ _ _ hits it. The casting is formed by the _ _ _ _ _ _ _ made in the _ _ _ _ .

EPS-2

Fill in the missing letters:

E__ __
__ P __
__ __ __
E P __
__ __ S

__ o __ m
f o __ __
__ __ a m
f __ a __
f __ __ m

__ e __ a __ t __ e __ t
d __ p __ r __ m __ n __
d __ __ a __ __ n __ __ t
__ __ __ a __ __ __ e __ __
__ __ p __ __ t __ __ n t

__ __ __ t __ __ n
__ __ t __ __ r n
p __ t __ e __ n
p __ __ t __ __ __
__ __ t t __ __ n

s __ r __ e
s __ __ u __
__ __ r __ __
__ p __ u __
__ __ __ u __

s __ n __
__ a __ d
__ __ n d
s a __ __
s __ __ d

a __ __ e m __ __ __
a s __ e __ b __ y
__ __ __ e __ __ l __
a __ s __ m __ l __
__ s __ e __ b __ y

c l __ __ t __ __
__ __ u __ t __ __
__ l __ s __ e __
c __ u __ t __ r
__ __ __ __ t __ __

PREACTIVITY FOR A to Z

1. ___________st

2. b_________d

3. j k _______

4. x_______z

5. m n ________

6. _________f g

7. o p ________

8. h _______ j

9. p _______r

10. ________v w

11. a b ________

12. ________j k

13. d ________ f

14. _________x y

15. g h ________

16. s ________ u

17. n _______ p

18. e f _________

19. h i _________

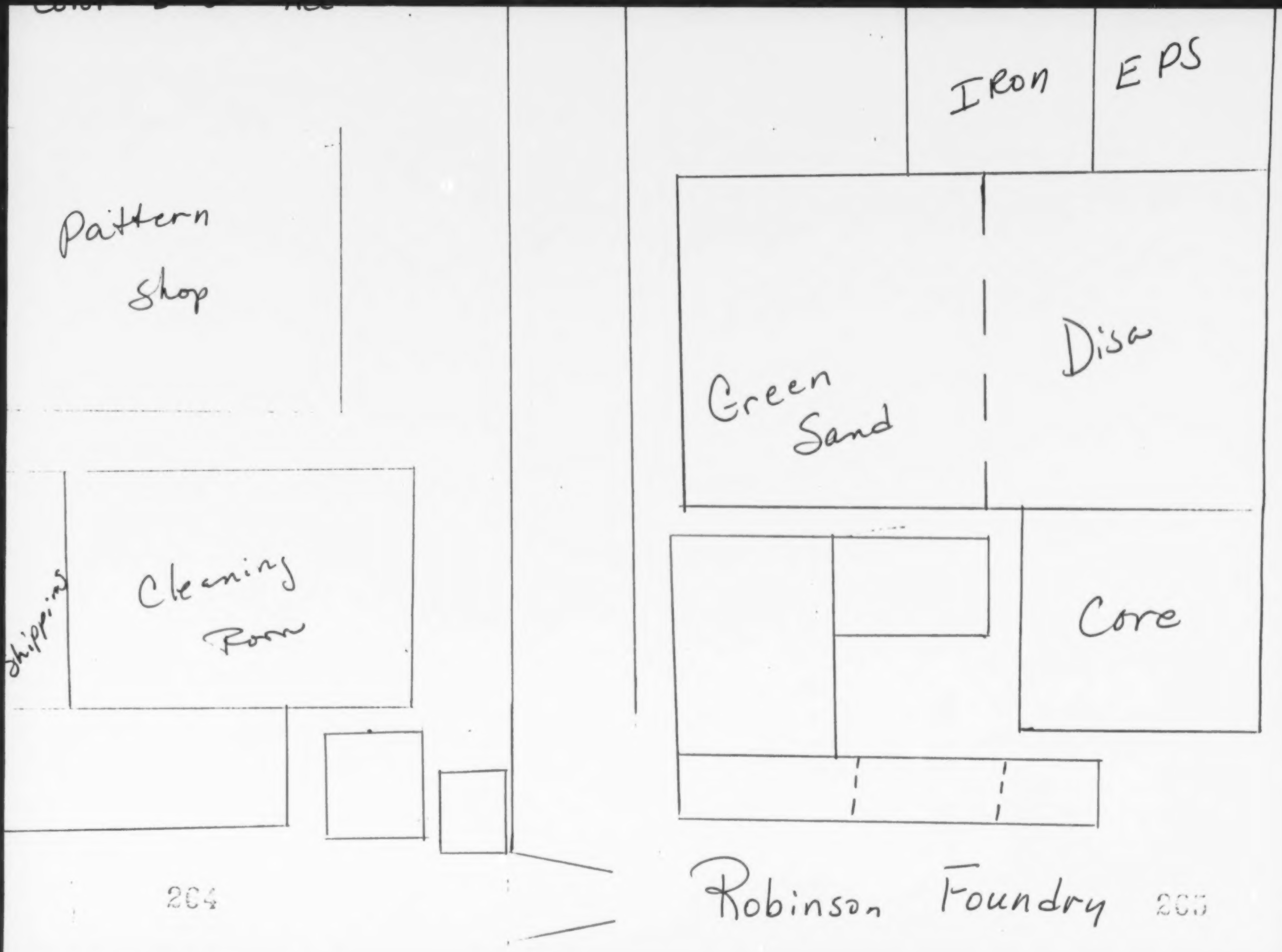
20. t u _________

PREACTIVITY FOR ALPHABETICAL ORDER

1. FLASK 1. ____________
2. ACCIDENT 2. ____________
3. CORE 3. ____________
4. SAND 4. ____________
5. PATTERN 5. ____________

1. MOLD 1. ____________
2. SLAG 2. ____________
3. FIN 3. ____________
4. EPS 4. ____________
5. CASTING 5. ____________

1. DEFECT 1. ____________
2. SCRAP 2. ____________
3. BP 3. ____________
4. SAFETY 4. ____________
5. HAMMER 5. ____________


Iron
EPS
Pattern Shop
Green Sand
Disa
Core
Cleaning Room
Shipping

Robinson Foundry

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 10
GRINDING PRODUCTION SHEET

ROBERT E. STONE,
PROJECT DIRECTOR
205 234 6346 EXT 6217

WRITTEN BY:
SANDRA MANN,
INSTRUCTOR/COUNSELOR
205 329 8481 EXT 81

The GRINDING PRODUCTION SHEET is used in the Cleaning Room.

Grinders fill out this form to report the number of castings they have cleaned. The completed forms go to the office where the information is put into the computer.

Read the following pages to learn how to read and fill out a GRINDING PRODUCTION SHEET.

Ask your teacher for a blank GRINDING PRODUCTION SHEET to use while learning about this form. Answer any questions on your paper.

DO NOT WRITE IN THIS BOOKLET

The **orange** lines tell information about the employee doing the work.

It is very important for the employee to write his or her full name so the office can put the information in the computer.

GRINDING PRODUCTION

DATE: SHIFT: WORK CENTER:

GRINDER(S):

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

The **GRINDING PRODUCTION SHEET** is different from other productions sheets. It has only column headings. There are no row headings down the side.

Look at the column heading in **pink**. When a pallet full of castings is placed in front of a grinding station, the worker writes the casting number here.

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

PM4/PROD0009/061191

Look at TOT. GROUND in **blue**. TOT. stands for total. This column shows how many good castings on each pallet are cleaned, ground, and sent to the Finishing Department.

Look at TOT. SCRAP in **green**. TOT. stands for total. This column shows how many defects were found and set aside for Quality Control to inspect.

GRINDING PRODUCTION

DATE: ______________ SHIFT: ______ WORK CENTER: ____________

GRINDER(S): ______________________________

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

The last two columns show how long it took the worker to grind each pallet of castings.

Look at TIME START in yellow. The worker writes the time he begins work on the pallet.

Look at TIME STOP in pink. The worker writes the time he finishes the pallet.

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ____________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

Do the exercises on the following pages to see how much you have learned about the GRINDING PRODUCTION SHEET.

GRINDING PRODUCTION SHEET

DIRECTIONS: Answer the following questions about the **GRINDING PRODUCTION SHEET** on the next page. Write your answers on your paper.

1. How many pallets did the worker complete for this day?
2. Which pallet had less than 5 castings ground?
3. Which pallet had the most scrap?
4. Which pallet had the least scrap?
5. Which pallet took the most time to grind?
6. Which pallet took the least time to grind?

CHECK YOUR ANSWERS ON THE NEXT PAGE.

GRINDING PRODUCTION

DATE: 1 - 20 -92 SHIFT: 1 WORK CENTER: ____________

GRINDER(S): Dexter Russell

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		
346038	15	3	6:10	7:48
121- 0028	22	4	8:10	9:52
32007- 10-10	5	0	10:05	11:47
436038	2	1	12:10	12:28
09193- 10-0	6	2	1:10	1:58

PM4/PROD0009/061191

ANSWERS

1. 5 pallets

2. 32007-10-10

3. 121-0028

4. 32007-10-10

5. 09193-10-0

6. 436038

GRINDING PRODUCTION EXERCISE

DIRECTIONS: Fill out a GRINDING PRODUCTION SHEET for the following work.

The TOT SCRAP is not shown. You figure this by subtracting the number ground from the number on the pallet.

1. Beginning at 6:00, you work on 346038. You have 18 castings on your pallet. You grind 15 castings and finish at 6:48.

2. At 6:50, you work on 905866. You have 3 on your pallet. You get 3 ground by 7:14.

3. You begin work on 905978 at 7:30. You have 4 castings on your pallet. You get 4 done by 7:54.

4. Work on 095F1201 begins at 8:00. There are 13 castings on your pallet. 11 castings are ground. The castings are finished at 8:54.

5. At 9:10, you begin work on 122 castings of SD-6065. You grind 110 and finish at 10:00.

6. At 11:00, you begin on 121-0028. There are 31 castings on the pallet. You grind 22 castings and you finish the pallet at 12:42.

7. You begin work on 09234-10-0 at 12:45. There are 69 castings on your pallet. You grind 65 castings. This takes you until 2:03, the end of your shift.

DID YOU REMEMBER TO SUBTRACT TO FIND THE SCRAP TOTALS?

CHECK YOUR ANSWERS ON THE NEXT PAGE

Answer Key

GRINDING PRODUCTION

DATE: ____________ SHIFT: ______ WORK CENTER: ____________

GRINDER(S): ______________________________

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		
346038	15	3	6:00	6:48
905866	3	0	6:50	7:14
905978	4	0	7:30	7:54
09SF1201	11	2	8:00	8:54
5D-6065	110	12	9:10	10:10
121-0028	22	9	11:00	12:42
09234-10-0	65	4	12:45	2:03

CONGRATULATIONS!

You have learned how to read and fill out a **GRINDING PRODUCTION SHEET.**

If you have any questions, ask your teacher for help.

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 11
BUILDING AND GROUNDS

ROBERT E. STONE,
PROJECT DIRECTOR
205 234 6346 EXT 6217

WRITTEN BY:
BETH MAXWELL,
INSTRUCTOR
205 329 8481 EXT 81

BUILDING AND GROUNDS WORD LIST

1. Building
2. Grounds
3. Foundry
4. Trash
5. Cleans
6. Safety
7. Departments
8. Pallet Line
9. Core
10. EPS
11. Cleaning
12. Materials

BUILDING AND GROUNDS-READING

Robert works on Building and Grounds at Robinson Foundry. He emptys trash and cleans departments. He must be careful and watch safety signs. He must do many tasks. He reports to his supervisor, Sam Huntley, who gives him orders for the day. He works in all departments, Pallet Line, Melt Deck, Core Room, Cleaning Room and EPS. He sometimes must go to special places in the Foundry to clean or put materials away.

Circle these words in the reading:

1. Building
2. Grounds
3. Foundry
4. trash
5. cleans
6. safety
7. departments
8. Pallet Line
9. Core
10. EPS
11. Cleaning
12. materials

BUILDING AND GROUNDS-READING

Fill in the missing letters:

Robert works on B _ _ _ _ i _ _ _ and _ _ _ _nds at Robinson F_ _ _ d _ _ . He emptys _ _ _ _ _ and _ _ _ _ _ _ departments. He must be careful and watch _ _ _ _ _ _ signs. He must do many tasks. He reports to his supervisor, Sam Huntley, who gives him orders for the day. He works in all _ _ _ _ _ _ _ _ _ _ _ , P _ _ _ _ t Line, Core Room, Cl_ _ _ _ _ _ Room and _ _ _ . He sometimes must go to special places in the _ _ _ _ _ _ _ to _ _ _ _ _ of put _ _ _ _ _ _ _ _ _ away.

WORD LIST:
1. Buildings
2. Grounds
3. Foundry
4. trash
5. cleans
6. safety
7. departments
8. Pallet Line
9. Cleaning
10. EPS
11. materials

BUILDING AND GROUNDS-MISSING LETTERS

FILL IN THE MISSING LETTERS:

B __ __ __ __ i __ g
B __ i __ d __ n __
B __ __ __ d __ __ g
__ __ __ ld __ ng
__ __ i __ __ i __ __

g __ o __ n __ s
__ __ __ und __
__ r __ u __ d __
gr __ __ __ d __
gro __ __ __ __

F __ __ __ d __ __
Fou __ __ __ __
__ __ __ n __ ry
F __ u __ d __ y
F __ __ ndry

__ __ r __ __ __
t __ r __ s __
__ __ __ a __ __
thr __ __ __
t __ r __ __ __

__ __ e __ __ __
c __ e __ n __
__ __ __ ans
cl __ __ ns
__ __ __ ans

s __ f __ ty
saf __ __ __
__ __ __ et __
__ a __ ety
s __ __ __ __ y

d __ p __ r __ m __ n __ s
__ __ __ __ __ __ ments
__ __ __ ar __ m __ __ __ s
__ __ __ art __ __ __ ts
dep __ __ a __ __ __ ts

P __ __ __ __ t Line
P __ l __ e __ __ i __
__ __ __ le __ Li __ __
__ __ ll __ __ L __ __ e
Pal __ __ __ Li __ __

BUILDING AND GROUNDS-READING

Fill in the missing letters:

c __ __ __
c __ r __
c __ re
c __ __ e
__ __ __ e

E __ __
__ __ S
__ P __
__ PS
EP __

__ __ __ er __ __ l __
m __ t __ r __ a __ s
__ __ __ e r __ __ l s
mat __ __ ials
m __ __ __ __ __ __ ls

PREACTIVITY FOR A to Z

1. __________st
2. b________d
3. j k ______
4. x______z
5. m n _______
6. ________f g
7. o p _______
8. h ______ j
9. p ______r
10. _______v w
11. a b _______
12. _______j k
13. d _______ f
14. ________x y
15. g h _______
16. s _______ u
17. n ______ p
18. e f ________
19. h i ________
20. t u ________

PREACTIVITY FOR ALPHABETICAL ORDER

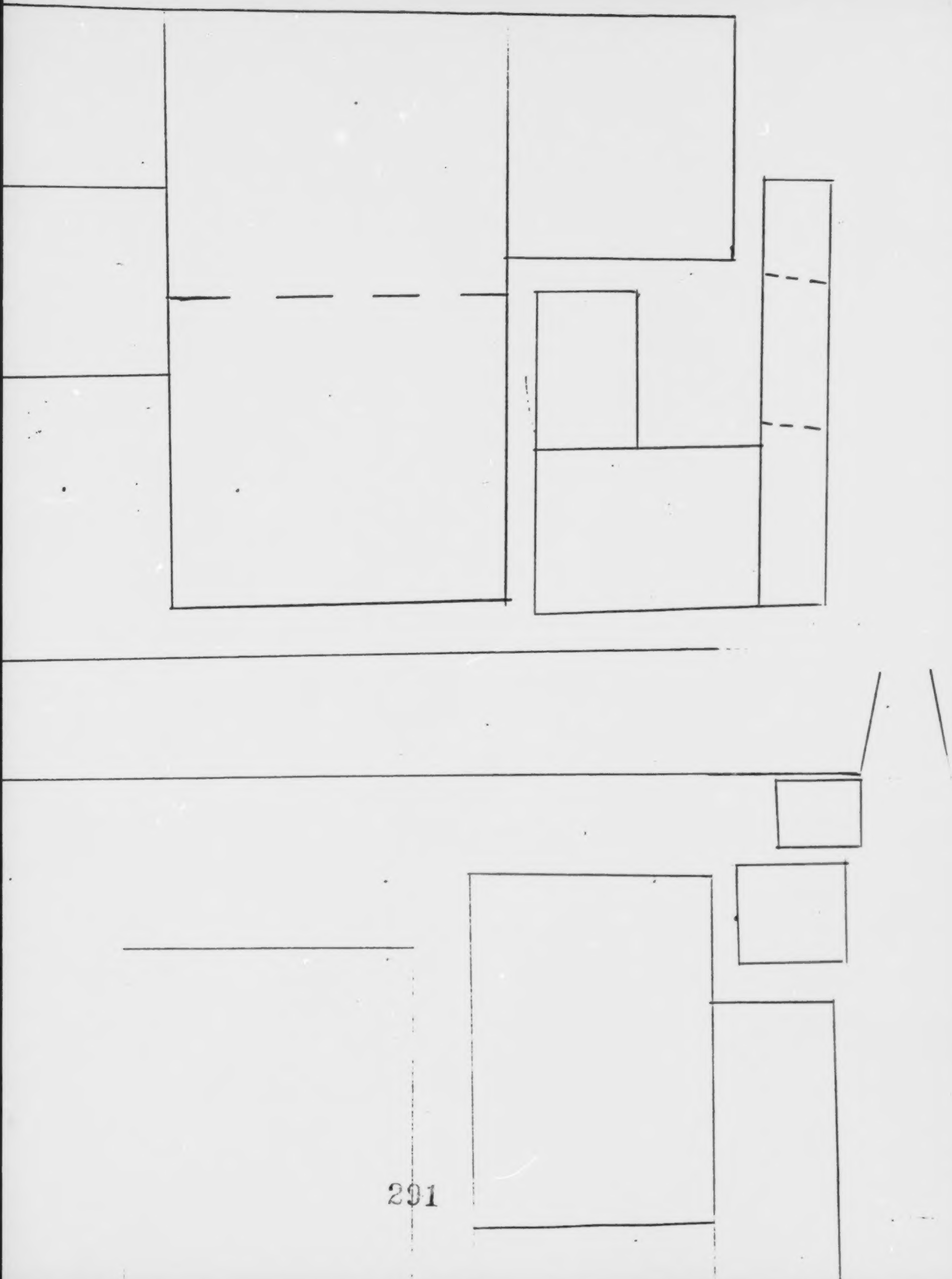
1. FLASK 1. ____________________
2. ACCIDENT 2. ____________________
3. CORE 3. ____________________
4. SAND 4. ____________________
5. PATTERN 5. ____________________

1. MOLD 1. ____________________
2. SLAG 2. ____________________
3. FIN 3. ____________________
4. EPS 4. ____________________
5. CASTING 5. ____________________

1. DEFECT 1. ____________________
2. SCRAP 2. ____________________
3. BP 3. ____________________
4. SAFETY 4. ____________________
5. HAMMER 5. ____________________

FIND THE DEPARTMENTS ON THE MAP

1. Personnel and Lab
2. Supply
3. Cleaning Room
4. Shipping
5. Pattern Shop
6. Iron Melting
7. EPS
8. Green Sand
9. Disa
10. Core Room
11. Storage
12. Storage
13. Maintenance
14. Security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JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 12
MOLDING PRODUCTION SHEET

ROBERT E. STONE,
PROJECT DIRECTOR
205 234 6346 EXT 6217

WRITTEN BY:
SANDRA MAXWELL,
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205 329 8481 EXT 81

The **MOLDING PRODUCTION SHEET** is used in Green Sand and in EPS.

Read the following pages to learn how to read and fill out the **MOLDING PRODUCTION SHEET.**

The green boxes tell when the worker starts work and stops work in each hour.

The yellow boxes show the hours of the shift from the 1st hour to the 9th hour.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ______________________________

	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	DOWN TIME										
							GOOD	PO	★			TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	COMMENTS
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																

TOT ______ TOT ______

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

E/FMT/PROX25 3/91

The pink box tells the machine being used.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ______________________________

												DOWN TIME										
	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	TIME FROM	TIME TO	TOTAL TIME								COMMENTS
							GOOD	PO	★						No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

3

303

E/PM/F/PRD0025 3/91

The **blue** box shows which casting number is molded in each hour.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ______________ SHIFT ________

MOLDER ____

							MOLDS					DOWN TIME										
	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	GOOD	PO	★	CLASS IRON	DEPTH OF CHILL	TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	COMMENTS
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISORS COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

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E/PM F/PR00025 3/91

3

The orange box shows how many impressions are on the pattern.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ______________________________

							MOLDS					DOWN TIME										
	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	GOOD	PO	★	CLASS IRON	DEPTH OF CHILL	TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	COMMENTS
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

E PM F/PR00025 3/91

The green box shows how many **GOOD** molds were made in each hour.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ________________ SHIFT ________

MOLDER ____

DOWN TIME

	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	TIME FROM	TIME TO	TOTAL TIME	▨	▨	▨	▨	▨	▨	▨	COMMENTS
							GOOD	PO	★						No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISORS COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

The yellow box tells how many **"PLUG-OFFS"** or bad molds were made in each hour.

The * shows the reason for the plug-off.

The pink box shows the plug-off reason and the supervisor comments.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ______________________________

	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	DOWN -TIME										
							GOOD	PO	★			TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	COMMENTS
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																

TOT

TOT

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

EPMF/PR0025 3/91

The blue box shows the class of iron poured for each casting number.

ROBINSON FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________________ SHIFT __________

MOLDER ____

							MOLDS					DOWN TIME										
	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	GOOD	PO	★	CLASS IRON	DEPTH OF CHILL	TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	COMMENTS
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

325

E/PM3/PROD25 3/91

TOTAL CASTING NUMBER

The orange box is the total castings made from the 1st hour through the 4th hour.

The worker found this number by multiplying the number of impressions (the green number) times the number of good molds (the yellow number).

The worker added the totals for the first 4 hours of work and put the answer in the orange box.

ROBINSON FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ____________________________

												DOWN TIME										
	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	TIME FROM	TIME TO	TOTAL TIME								COMMENTS
							GOOD	PO	★						No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	
1st Hour						1 x	25															
						x																
2nd Hour						2 x	30															
						x																
3rd Hour						2 x	40															
						x																
4th Hour						1 x	20															
						x					185											
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISORS COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

The pink box is the total castings made from the 5th hour through the 9th hour.

The worker found this number by multiplying the number of impressions (the blue number) times the good molds (the orange number).

The worker added the totals and put the answer in the pink box.

ROBINSON FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ____________________________

	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	DOWN TIME										
							GOOD	PO	★			TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	COMMENTS
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						1 x	20															
						x																
6th Hour						1 x	17															
						x																
7th Hour						2 x	35															
						x																
8th Hour						3 x	40															
						x																
9th Hour						1 x	73															
						x					300											
						x																
						x																

TOT

TOT

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

E/PM/F/PRO0025 3/91

The green box shows the total number of castings made for the day. The worker added the totals for the 4th hour (in orange) and for the 9th hours (in pink). He put the answer in the pink box.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ____________________________

	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	DOWN TIME TIME FROM	TIME TO	TOTAL TIME								COMMENTS
							GOOD	PO	★						No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x					185											
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x					300											
						x																
						x					485											

TOT ____

TOT ____

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

DOWN TIME

The yellow box shows the time a worker stops work.

The orange box shows the time a worker starts back to work.

The pink box shows the number of minutes the worker was not at work.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ______________________________

												DOWN TIME										
	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	TIME FROM	TIME TO	TOTAL TIME	▨	▨	▨	▨	▨	▨	▨	COMMENTS
							GOOD	PO	★						No Iron	Iron Spec	Mach	Hot Sand	Wet Foam		Other	
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

E/PM/F/PROD025 3/91

The blue boxes show the reason for each of the down times.

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ______________________________

												DOWN TIME										
	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	TIME FROM	TIME TO	TOTAL TIME	▨	▨	▨	▨	▨	▨	▨	COMMENTS
							GOOD	PO	★						No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISORS COMMENTS & REQUIRED CORRECTIVE ACTION
A SAND	
B MACHINE	
C PATTERN	
D OTHER	

The green box is a place for the worker to write a reason for any down time that is not listed in the blue boxes.

ROBINSON FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ______________________________

	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS			CLASS IRON	DEPTH OF CHILL	DOWN TIME										COMMENTS
							GOOD	PO	★			TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	
1st Hour						x																
						x																
2nd Hour						x																
						x																
3rd Hour						x																
						x																
4th Hour						x																
						x																
5th Hour						x																
						x																
6th Hour						x																
						x																
7th Hour						x																
						x																
8th Hour						x																
						x																
9th Hour						x																
						x																
						x																
						x																
			TOT											TOT								

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

Do the exercise on the next 2 pages to see how well you have learned to read the MOLDING PRODUCTION SHEET.

Write your answers on your paper. Do not write in this booklet.

MOLDING PRODUCTION SHEET

DIRECTIONS: Answer the following questions about the MOLDING PRODUCTION SHEET filled out by George Smith on 5-15-91.

1. Which CASTING NUMBER has the most IMPRESSIONS on the pattern plate?
2. Which CASTING NUMBERS have the least IMPRESSIONS on the pattern plate?
3. In which hour were the most MOLDS made? How many castings were made in this hour?
4. In which hour were the least amount of MOLDS made? How many castings were made in this hour?
5. Which hour had the most PO? What was the cause?
6. Why was the work stopped at the following times?

4:30 ______________________________

7:05 ______________________________

10:13 ______________________________

11:05 ______________________________

7. What was the total DOWN TIME?
8. How many castings were made during the following hours?

1st Hour ________

2nd Hour ________

3rd Hour ________

5th Hour ________

6th Hour ________

7th Hour ________

TURN THE PAGE AND CHECK YOUR ANSWERS

ROBINSON
FOUNDRY, INC.

MOLDING PRODUCTION

DATE 5-15-91 SHIFT 1st

MOLDER George Smith

	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS GOOD	MOLDS PO	★	CLASS IRON	DEPTH OF CHILL
1st Hour	4:00	5:00		Hunter	R-1543	2 x	7			30A	
						x					
2nd Hour	5.00	6:00			63197787	1 x	25	8	A	"	
						x					
3rd Hour	6:00	7 00			901624	1 x	100	5	D	"	
						x					
4th Hour	7.00	8.00			300333	3 x	91	6	C	"	412
						x					
5th Hour	8:00	9.00			"	3 x	10			"	
						x					
6th Hour	9:00	10.00			63196008	2 x	96	6	D	"	
						x					
7th Hour	10:00	11.00			"	2 x	86			"	
						x					
8th Hour	11 00	12 N			"	2 x	15	7	C	"	424
						x					
9th Hour						x					
						x					
						x				T.	836
						x					

TOT

DOWN TIME

TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mech	Hot Sand	Wet Foam		Other	COMMENTS
4:12	4:22	4							✓	Lab running a sample
4:30	4:45	8	✓							
5.05	5.10	5							✓	Pattern change
7.05	7.15	5							✓	pattern change
8.05	8:09	4		✓						
9.00	9:10	3							✓	pattern change
10:13	10:25	9							✓	Electric Bull down
11.05	11:50	6							✓	Working on a pattern
11.50	12:00	10	✓							

TOT 54

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

E/PM F/PRD0025 3/91

ANSWERS

1. 300333
2. 63197787
3. The 3rd hour; 100
4. The 1st hour; 14
5. The 2nd hour; A (sand)
6. 4:30 no iron
   7:04 pattern change
   10:13 Electric Bull down
   11:05 working on pattern
7. 54
8. 1st hour: 14
   2nd hour: 25
   3rd hour: 100
   5th hour: 30
   6th hour: 192
   7th hour: 172

Now that you know how to read a **MOLDING PRODUCTION FORM**, do the exercise on the next 2 pages.

Ask your teacher for a blank **MOLDING PRODUCTION FORM** to use for the exercise.

Check your answers by the answer key at the end of the book.

THE MOLDING PRODUCTION SHEET

DIRECTIONS: Fill in a production sheet with the following information about each job.

Use your own name, your shift, and today's date.

THE FIRST JOB

You start work at 4:00. You work on the Hunter today. The first job is on CASTING NUMBER 901504. This casting has 2 impressions. This casting is made with 25 CLASS IRON.

Fill in the rest of the sheet using the following information:

1st hour: GOOD MOLDS: 25 PO: 0 PO CAUSE: 0
2nd hour: GOOD MOLDS: 30 PO: 0 PO CAUSE: 0
3rd hour: GOOD MOLDS: 10 PO: 15 PO CAUSE: A

THE SECOND JOB

You start work on the second job at 7:00. This job is on CASTING NUMBER 40162P. This casting has 5 impressions. This casting is poured with 30-A CLASS IRON.

Fill in the rest of the sheet using the following information:

4th hour: GOOD MOLDS: 55 PO: 0 PO CAUSE: 0
5th hour: LUNCH
6th hour: GOOD MOLDS: 25 PO: 13 PO CAUSE: B

THE THIRD JOB

You start work on the third job at 12:00 noon. This job is on CASTING NUMBER R-153-E. This casting has 1 impression. This casting is poured with 25 CLASS IRON.

Fill in the rest of the sheet using the following information:

7th hour: GOOD MOLDS: 85 PO: 0 PO CAUSE: 0
8th hour: GOOD MOLDS: 95 PO: 0 PO CAUSE: 0
9th hour: GOOD MOLDS: 75 PO: 22 PO CAUSE: C

TOTALS

Add up the total molds through the 4th hour. Add up the total molds from the 6th hour through the 9th hour. Add up the total for the day's production.

DOWN TIME

DIRECTIONS: Fill out the DOWN TIME side with the following information:

5:05 to 5:22	NO IRON
6:15 to 6:45	DRY SAND
10:36 to 10:55	ELECTRIC BULL DOWN
11:11 to 11:35	WORKING ON PATTERN

TOTALS

Add up the TOTAL TIME for each DOWN TIME.

ROBINSON FOUNDRY, INC.

MOLDING PRODUCTION

DATE ____________ SHIFT ________

MOLDER ____________

	TIME START	TIME STOP	TOTAL TIME	MACHINE	CASTING NUMBER	IMP.	MOLDS GOOD	MOLDS PO	★	CLASS IRON	DEPTH OF CHILL
1st Hour	4:00	5:00		Hunter	901504	2 x	25			25	
						x					
2nd Hour	5:00	6:00			"	2 x	30			"	
						x					
3rd Hour	6:00	7:00			"	2 x	10	15	A	"	
						x					
4th Hour	7:00	8:00			40162P	5 x	55			30A	
						x					405
5th Hour	8:00	9:00				x					
						x					
6th Hour	9:00	10:00			"	5 x	25	13	B	"	
						x					
7th Hour	10:00	11:00			R-153-E	1 x	85			25	
						x					
8th Hour	11:00	12:00			"	1 x	95			"	
						x					
9th Hour	12:00	13:00			"	1 x	75	22	C		
						x					380
						x					
						x				T.	785
			TOT								

DOWN TIME

TIME FROM	TIME TO	TOTAL TIME	No Iron	Iron Spec	Mach	Hot Sand	Wet Foam		Other	COMMENTS
5:05	5:22	17	✓							
6:15	6:45	30							✓	Dry Sand
10:36	10:55	19							✓	Electric Bull Down
11:11	11:35	24							✓	Working on pattern
	TOT	90								

★ PO CAUSE	SUPERVISOR'S COMMENTS & REQUIRED CORRECTIVE ACTION
A - SAND	
B - MACHINE	
C - PATTERN	
D - OTHER	

E/PMS PRD0025 3/91

CONGRATULATIONS!

You have learned how to read and fill out the **MOLDING PRODUCTION SHEET.**

If you have any questions, ask your teacher for help.

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 13
FORMS

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OCCUPATIONAL FORMS USED AT ROBINSON

To be a successful worker, you need to know how to read and understand occupational forms such as charts, graphs, tables, and forms. Robinson Foundry uses many different kinds of occupational forms every day. Charts, graphs, tables, and forms are used to record and store information about the work Robinson employees do each day.

It is important for you to know how to read and understand any occupational form that is used in your department. You also need to know how to write information on these forms.

Many occupational forms used at Robinson are in the form of a **CHART**.

A **CHART** is a way to show facts and figures so that you can see the information easily.

Look at the **CHARTS** on the next 6 pages to learn how to read occupational charts.

The blue boxes tell what is written in the boxes down below them.

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box ×	Machine Cylces =	Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

PM4/PROD0005

The **pink** boxes tell what is written in the rows across to the right.

SHELL CORE PRODUCTION

Date: __________ Shift: __________ Name: ______________________________ Machine No.: _____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

PM4/PROD0005

Look at the **orange** box where the two lines meet.

This shows how many pieces were made in the 5th hour.

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:_____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

PM4/PROD0005

Now that you know how to read a **CHART**, do the exercises on the next two pages.

Write your answers on your paper. Do not write in this booklet.

SHELL CORE PRODUCTION SHEET

Look at the **SHELL CORE PRODUCTION SHEET** on the next page. Answer the questions about that sheet. Write the answers on your paper.

1. What is the CORE I.D. NO. for the work done in the 5th hour?
2. How many PIECES were made in the 8th hour?
3. How many PIECES SCRAP were made in the 7th hour?
4. Jack went to lunch in the _________ hour.
5. The machine broke down in the ________ hour.
6. What is the CORE DESCRIPTION for the 1st hour?
7. What is the CORE WEIGHT for the 4th hour?
8. Core I.D. No. 1202963 has _________ IMPRESSIONS.
9. How many MACHINE CYCLES were run in the 2nd hour?

SHELL CORE PRODUCTION

Date: __________ Shift: __________ Name: ______________________________ Machine No.: ____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour	4:00 - 5:00	5260260	Sump Pot	5 lbs	1	38	38	0	
2nd Hour	5:00 - 6:00	"	"	"	1	37	37	0	
3rd Hour	6:00 - 7:00	"	"	"	1	35	35	0	10 min Break
4th Hour	7:00 - 8:00	6321	Main Body	5.2 lbs	1	42	42	0	
5th Hour	8:00 - 9:00	"	"	"	1	21	21	2	30 min Lunch
6th Hour	9:00 - 10:00	"	"	"	1	41	41	0	
7th Hour	10:00 - 11:00	1202963	Main Body	5 lbs.	2	40	80	7	
8th Hour	11:00 - 12:00	"	"	"	2	23	46	8	35 min Machine Down
9th Hour	12:00 - 1:00	"	"	"	2	39	78	4	

PM4/PROD0005

Now that you know how to read a **CHART,** let's learn how to fill out to a SHELL CORE PRODUCTION SHEET.

Get a blank SHELL CORE PRODUCTION SHEET from your teacher.

Turn the page to see how you fill out this form.

Look at the [redacted] lines. This is the place for the DATE, the SHIFT, the FULL NAME, and the Shell Core MACHINE NUMBER.

If you do not put your FULL NAME on the line, the computer will not give you credit for your work.

Fill in your practice sheet with the following:

DATE: put today's date
SHIFT: 1ST
NAME: write your own name
MACHINE NO.: 400

SHELL CORE PRODUCTION

Date: ______ Shift: ______ Name: ____________________ Machine No.: ________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

PM4/PROD0005

Look at the blue box. This shows the time work begins and ends for each hour. The numbers show how this column should be filled in for the first shift.

Copy the numbers on your practice sheet.

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:_____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box ×	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour	4:00 - 5:00								
2nd Hour	5:00 - 6:00								
3rd Hour	6:00 - 7:00								
4th Hour	7:00 - 8:00								
5th Hour	8:00 - 9:00								
6th Hour	9:00 - 10:00								
7th Hour	10:00 - 11:00								
8th Hour	11:00 - 12:00								
9th Hour	12:00 - 1:00								

PM4/PROD0005

The **orange** numbers are the CORE I.D. NO.

The **green** words are the CORE DESCRIPTIONS.

These numbers and words are always filled in by the leadman.

Copy them on your practice sheet.

SHELL CORE PRODUCTION

Date: ________ Shift: ________ Name: ____________________ Machine No.: __________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour		5257697	Glue-In						
2nd Hour		"	"						
3rd Hour		"	"						
4th Hour		1273575	Body						
5th Hour		"	"						
6th Hour		"	"						
7th Hour		5263702	Stick						
8th Hour		"	"						
9th Hour		"	"						

PM4/PROD0005

The yellow box shows the CORE WEIGHT.

The worker weighs the first core he makes and writes the amount in this column.

Put these core weights on your practice sheet:

1st hour: 9.5 lbs.
2nd hour: "
3rd hour: "
4th hour: 1.5 lbs.
5th hour: "
6th hour: "
7th hour: 3 lbs.
8th hour: "
9th hour: "

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:_____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

PM4/PROD0005

The pink box shows the number of IMPRESSIONS in the core box.

Put these IMPRESSIONS on your practice sheet:

1st hour: 1
2nd hour: 1
3rd hour: 1
4th hour: 2
5th hour: 2
6th hour: 2
7th hour: 1
8th hour: 1
9th hour: 1

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:______________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box ×	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

PM4/PROD0005

The blue box shows the number of MACHINE CYCLES.

The worker writes how many times he runs his machine a full cycle and makes one or more cores.

Put these MACHINE CYCLES on your practice sheet:

1st hour: 35
2nd hour: 34
3rd hour: 32
4th hour: 67
5th hour: 34
6th hour: 60
7th hour: 25
8th hour: 35
9th hour: 31

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:_____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

PM4/PROD0005

The **green** box shows the number of PIECES MADE in each hour.

The worker multiplies the orange numbers under IMP/BOX times the blue numbers under MACHINE CYCLES. He writes the answer in the yellow box under PIECES MADE. The **1st hour** hour and the **4th hour** are filled in to show you how to do this.

Fill in the rest of the PIECES MADE column on your practice sheet.

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:______________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour					1	35	35		
2nd Hour									
3rd Hour									
4th Hour					2	67	134		
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

418

PM4/PROD0005

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The **pink** box shows the number of PIECES SCRAP.

At the end of each hour the worker writes the number of scrap pieces he made.

Put these SCRAP numbers on your practice sheet:

1st hour: 0
2nd hour: 1
3rd hour: 3
4th hour: 10
5th hour: 4
6th hour: 6
7th hour: 0
8th hour: 0
9th hour: 0

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:_____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

PM4/PROD0005

The blue box shows the DOWN TIMES.

The worker writes in the amount of time he is not running his machine. He also writes the reason for the DOWN TIME. The first DOWN TIME is filled in to show you how to do this.

Put these DOWN TIMES on your practice sheet:

5th hour: 30 min lunch
7th hour: 15 min power off

TURN THE PAGE TO SEE IF YOUR PRACTICE SHEET IS CORRECT.

SHELL CORE PRODUCTION

Date:__________ Shift:__________ Name:______________________________ Machine No.:_____________

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box ×	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour									
2nd Hour									
3rd Hour									10 min Break
4th Hour									
5th Hour									
6th Hour									
7th Hour									
8th Hour									
9th Hour									

SHELL CORE PRODUCTION

Date: ________ **Shift:** 1st **Name:** ________ **Machine No.:** 400

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box ×	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour	4:00-5:00	5257697	Glue In	9.5 lbs.	1	35	35	0	
2nd Hour	5:00-6:00	"	"	"	1	34	34	1	
3rd Hour	6:00-7:00	"	"	"	1	32	32	3	10 min. Break
4th Hour	7:00-8:00	1273575	Body	1.5 lb	2	67	134	10	
5th Hour	8:00-9:00	"	"	"	2	34	68	4	30 min Lunch
6th Hour	9:00-10:00	"	"	"	2	60	120	6	
7th Hour	10:00-11:00	5263702	Stick	3 lbs	1	25	25	0	15 min power off
8th Hour	11:00-12:00	"	"	"	1	35	35	0	
9th Hour	12:00-1:00	"	"	"	1	31	31	0	

Get another blank Shell Core Production Sheet.

Turn the page and read about another day in the career of Jack Doss.

Fill in your blank sheet with Jack's work. If you need to, look back in the booklet for help in doing this exercise.

1st Hour through 3rd Hour

START WITH THE 1ST HOUR AND PUT THESE NUMBERS ON THE SHEET: Jack starts work at 5:00 on a 400 machine. The first job is Core I.D. No. 5267997. The leadman tells Jack to write "Body" under the description. The core weighs 4.02 pounds. The core box has 1 impression.

1st hour: Machine cycles: 22 Scrap: 1
2nd hour: Machine cycles: 23 Scrap: 0
3rd hour: Machine cycles: 23 Scrap: 0

4th Hour through 6th Hour

START WITH THE 4TH HOUR AND PUT THESE NUMBERS ON THE SHEET: The 4th hour starts with a "body" core with the I.D. No. of 1273574/01. The core box has 2 impressions. It weighs 1.5 pounds.

4th hour: Machine cycles: 67 Scrap: 0
5th hour: Machine cycles: 65 Scrap: 4
6th hour: Machine cycles: 25 Scrap: 5

7th Hour through 9th Hour

START WITH THE 7TH HOUR AND PUT THESE NUMBERS ON THE SHEET: The 7th hour starts with a Body core with the I.D. No. 5253741/01. The core weights 30 pounds. There is 1 impression in the core box.

7th hour: Machine cycles: 16 Scrap: 0
8th hour: Machine cycles: 21 Scrap: 3
9th hour: Machine cycles: 18 Scrap: 5

DID YOU REMEMBER TO MULTIPLY THE IMPRESSIONS TIMES THE CYCLES TO FIND THE NUMBER OF PIECES MADE?

Down Time

Jack had the following Down Times. Put these times on the sheet.

7:15 to 7:25...10 minute break
10:00 to 10:30...30 minute lunch
12:07 to 12:23...16 minute power off

LOOK AT THE NEXT PAGE AND SEE IF YOUR SHEET IS CORRECT!

SHELL CORE PRODUCTION

Date: ______ **Shift:** ______ **Name:** Jack Doss **Machine No.:** 400

	Time From - To	Core I.D. No.	Core Description	Core Weight	Imp/ Box x	Machine Cylces	= Pieces Made	Pieces Scrap	Down Time
1st Hour	5:00 - 6:00	S267997	Body	4.00lbs	1	22	22	1	
2nd Hour	6:00 - 7:00	"	"	"	1	23	23	0	
3rd Hour	7:00 - 8:00	"	"	"	1	23	23	0	10 min Break
4th Hour	8:00 - 9:00	1273574/01	Body	1.5 lbs	2	67	134	0	
5th Hour	9:00 - 10:00	"	"	"	2	65	130	4	
6th Hour	10:00 - 11:00	"	"	"	2	25	50	5	30 min Lunch
7th Hour	11:00 - 12:00	5253741/01	Body	30 lbs	1	16	16	0	
8th Hour	12:00 - 1:00	"	"	"	1	21	21	3	16 min Power Off
9th Hour	1:00 - 2:00	"	"	"	1	18	18	5	

CONGRATULATIONS!

You have learned how to read and fill out one of the OCCUPATIONAL FORMS used at Robinson Foundry.

If you have any further questions, ask your teacher.

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 14
GRINDING PRODUCTION SHEET

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GRINDING PRODUCTION SHEET

The grinding production sheet is used in the cleaning room to keep a count of pieces ground. It is important to the worker to keep up with each number every hour.

In this booklet we are going to attempt to learn to find the parts of a grinding production sheet. The worker will learn to find the part by first coloring the part, next he will learn to fill in the part of the sheet.

Turn to the next page to learn about the first part of the grinding production sheet.

The Date is placed at the top of the grinding production sheet. Color Date blue.

GRINDING PRODUCTION

DATE: ____________ SHIFT: ________ WORK CENTER: ____________

GRINDER(S): ______________________________

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

PM4/PROD0009/061191

Fill in the date on each of the following sheets:

1. Date: 3/13/92

2. Date: 1/11/92

3. Date: 2/10/92

4. Date 1/17/92

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ____________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

The shift is placed at the top of each sheet.

Color the shift red:

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

PM4/PROD0009/061191

Fill the shift in for each sheet:

1. Shift: 1st
2. Shift: 2nd
3. Shift: 3rd
4. Shift: 2nd

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

In the cleaning room there are different areas for each grinders. These are called work centers. Color work center on the sheets-yellow.

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ____________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

Also in the cleaning room there are many different kinds of grinders. Look at the top of the sheet and color the word grinders-purple.

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

In working with castings, all castings have a number. The numbers are marked somewhere on the casting. Color column marked casting number-black.

Now fill in the following casting numbers on the other sheet:

1. 56044
2. 40424
3. 24816
4. 06F141000

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

PM4/PROD0009/061191

ToT. ground means the total number of castings that grinder grinds. Color ToT. ground on your sheet-green.

GRINDING PRODUCTION

DATE:____________________ SHIFT:________ WORK CENTER:______________

GRINDER(S):____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

On each line under ToT. ground the grinder writes the number ground of that casting number. Please fill in on each line each of the following numbers ground:

1. 525
2. 200
3. 100
4. 225

GRINDING PRODUCTION

DATE: ______________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ______________________________

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

PM4/PROD0009/061191

Tot. scrap means number that was no good in Tot. ground. These must be remelted. Color Tot. scrap column on the following sheet-orange.

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

PM4/PROD0009/061191

On each line under Tot. scrap are filled in the number of scrap the grinder finds each casting number. PLease fill in each number on each line under Tot. scrap:

1. 10

2. 25

3. 40

4. 60

GRINDING PRODUCTION

DATE: ____________ SHIFT: ________ WORK CENTER: ____________

GRINDER(S): ______________________________

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

All time on sheets must be kept. Time start means the time you begin to work on each casting. Color Time start column-pink.

GRINDING PRODUCTION

DATE: ____________________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

PM4/PROD0009/061191

On each line under Time start the grinder is to place the time he begins to work on each casting. On each line under Time start please fill in the following times:

1. 4:00 A.M.
2. 5:00 A.M.
3. 6:00 A.M.
4. 8:00 A.M.

GRINDING PRODUCTION

DATE: ____________ SHIFT: ________ WORK CENTER: ____________

GRINDER(S): ______________________________

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

Time stop means the time the grinder stops has grinding on a certain casting number. Color time stop column-brown.

GRINDING PRODUCTION

DATE: ______________________ SHIFT: ________ WORK CENTER: ______________

GRINDER(S): ____

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

On each line under Time stop each grinder must place the time he stops. Please fill in the following times on each line:

1. 5:00 A.M.
2. 6:00 A.M.
3. 7:00 A.M.
4. 9:30 A.M.

GRINDING PRODUCTION

DATE: ____________ SHIFT: ________ WORK CENTER: ____________

GRINDER(S): ______________________________

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

Now let's try filling out all the material on the grinding production sheet. Fill in the following items on the sheet:

1. For casting number 09SF1112, fill in total amount ground 85 with total scrap of 18. The grinder started grinding at 5:00 A.M. and stopped at 6:15 A.M. Fill in the grinding production sheet.

2. Casting number 08EG2233 was started at 9:00 A.M. and stopped at 10:15 A.M. There were 35 ground and 8 scraped. Fill in the grinding production sheet.

GRINDING PRODUCTION

DATE: ____________ SHIFT: ______ WORK CENTER: __________

GRINDER(S): ______________________________

CASTING NUMBER	PRODUCTION		TIME START	TIME STOP
	TOT. GROUND	TOT. SCRAP		

PM4/PROD0009/061191

JOBS

A PARTNERSHIP BETWEEN EDUCATION AND INDUSTRY

CENTRAL ALABAMA COMMUNITY COLLEGE & ROBINSON FOUNDRY, INC.
1992

LESSON 15
RF VOCABULARY

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Contents in this Learning Package

RF Vocabulary (for early readers)

1. Pretest

Trainee is given list of pairs of words. Instructor reads one word of each pair, which the trainee is to circle.

2. Hear-and-see exercise

Trainee listens to an audio tape which reads the list of vocabulary words, and then reads sentences using the vocabulary words. Trainee 'reads along' on with cards.

(Trainee is given list of vocabualry words to take home.)

3. Alphabetizing exercise (trainee can refer to master list of vocabulary words)

Trainee draws lines to show correct alphabetical order of a printed list of vocabulary words.

4. Matching exercises

   a. Trainee draws line from each vocabulary word to its match, choosing from a pair of words in each case.

   b. Same as 4a, but more difficult because of similarity of paired words.

5. Underlining exercises

   a. Trainee underlines the vocabulary words in familiar sentences.

   b. Same as 5a, but more difficult because sentences are mixed up.

6. Fill-in-the-blank exercises

   a. Trainee fills in vocabulary words which have been left out of familiar sentences.

   b. Same as 6a, but more difficult because sentences are mixed up.

7. Narrative exercises (after listening to audio tape)
    a. Trainee finds and circles vocabulary words in narrative paragraphs.
    b. Trainee fills in vocabulary words in cloze exercise.
    c. Trainee answers multiple choice questions based.
8. Post test (same as pre test)

Pre test and Post test

1. ant
   Alex City

2. boy
   BP Machine

3. Coca Cola
   core

4. Dadeville
   DANGER

5. EPS
   elephant

6. foundry
   football

7. green
   green sand

8. heat
   Hardee's

9. IRS
   iron

10. July
    January

11. K-Mart
    Kentucky Fried Chicken

12. lost
    lost foam

13. McDonald's
    mold

14. No Smoking Area
    N Street

15. OK
    October

16. pay check
    pattern

17. quality control
    quiet zone

18. Robinson - Bodine
    Robinson Foundry

19. STOP
    Saturday

20. telephone
    taxes

21. B Street
U Street

22. V-8 engine
vegetables

23. Wal-Mart
wildcats

24. x-ray
x-rated movie

25. you
yes

26. zebra
zero

2. Vocabulary List

A	Alex City	1
B	BP machine	2
C	core	3
D	DANGER	4
E	EPS	5
F	foundry	6
G	green sand	7
H	heat	8
I	iron	9
J	July	10
K	Kentucky Fried Chicken	11
L	lost foam	12
M	McDonald's	13
N	No Smoking Area	14
O	OK	15
P	pattern	16
Q	quality control	17
R	Robinson Foundry	18
S	STOP	19
T	taxes	20
U	U Street	21
V	V-8 engine	22
W	Wal-Mart	23
X	x-ray	24
Y	you	25
Z	zero	26

2. Sentences Using Vocabulary Words

I live in Alex City.
I work on the BP Machine.
Run a core on this job.

The sign says 'Danger'.
I work in the EPS Department.
I work in a foundry.

I work on the Green Sand line.
We heat the iron.
We heat the iron.

We eat fried chicken on July 4th.
We eat Kentucky Fried Chicken on July 4th.
I work on the lost foam process.

We eat at McDonald's.
McDonald's has a No Smoking Area.
It's OK to smoke in the parking lot.

The pattern number is 346036.
I work in the Quality Control Department.
I work at Robinson Foundry.

The sign says 'STOP'.
You can't stop taxes.
The sign says 'U Street'.

That Ford has a V-8 engine.
That Ford is parked outside Wal-Mart.
Get an x-ray at the Alex City Hospital.

You can't stop taxes.
Five, four, three, two one, zero.

3. Alphabetizing exercise

Alex City
core
BP machine

EPS
foundry
DANGER

heat
green sand
iron

Kentucky Fried Chicken
lost foam
July

McDonald's
OK
No Smoking Area

Robinson Foundry
quality control
pattern

STOP
U Street
taxes

V-8 engine
x-ray
Wal-Mart

zero
you

4a. Matching

1. Alex City	ant Alex City
2. BP Machine	boy BP Machine
3. core	Coca Cola core
4. DANGER	Dadeville DANGER
5. EPS	EPS elephant
6. foundry	foundry football
7. green sand	green green sand
8. heat	heat Hardee's
9. iron	IRS iron
10. July	July January

11.	Kentucky Fried Chicken Chicken	K-Mart Kentucky Fried Chicken
12.	lost foam	lost lost foam
13.	mold	McDonald's mold
14.	No Smoking Area	No Smoking Area N Street
15.	OK	OK October
16.	pay check	pay check pattern
17.	quality control	quality control quiet zone
18.	Robinson -Bodine	Robinson - Bodine Robinson Foundry
19.	STOP	STOP Saturday
20.	taxes	telephone taxes

21. U Street	B Street U Street
22. V-8 engine	V-8 engine vegetables
23. Wal-Mart	Wal-Mart wildcats
24. x-ray	x-ray x-rated
25. you	you gun
26. zero	zebra zero

4b. Matching

1.	Alex City	apple pie Alex City
2.	BP Machine	Coke machine BP Machine
3.	core	care core
4.	DANGER	dogwood DANGER
5.	EPS	EPS IBM
6.	foundry	foundry family
7.	green sand	gray sand green sand
8.	heat	heat he
9.	iron	wine iron
10.	July	July June

11.	Kentucky Fried Chicken	K-Mart Kentucky Fried Chicken
12.	lost foam	time lost foam
13.	McDonald's	McDonald's McDougall's
14.	No Smoking Area	No Smoking Area No Parking Zone
15.	OK	OK oh
16.	pattern	pay check pattern
17.	quality control	quality control high quality
18.	Robinson -Bodine	Robinson family Robinson Foundry
19.	STOP	STOP Start
20.	taxes	taxis taxes

21.	U Street	D Street U Street
22.	V-8 engine	V-8 engine V-6 engine
23.	Wal-Mart	Wal-Mart wishing well
24.	x-ray	x-ray x-rays
25.	you	you yes
26.	zero	zoo zero

5a. Underlining

I live in Alex City.
I work on the BP Machine.
Run a core on this job.

The sign says 'Danger'.
I work in the EPS Department.
I work in a foundry.

I work on the Green Sand line.
We heat the iron.
We heat the iron.

We eat fried chicken on July 4th.
We eat Kentucky Fried Chicken on July 4th.
I work on the lost foam process.

We eat at McDonald's.
McDonald's has a No Smoking Area.
It's OK to smoke in the parking lot.

The pattern number is 346036.
I work in the Quality Control Department.
I work at Robinson Foundry.

The sign says 'STOP'.
You can't stop taxes.
The sign says 'U Street'.

That Ford has a V-8 engine.
That Ford is parked outside Wal-Mart.
Get an x-ray at the Alex City Hospital.

You can't stop taxes.
Five, four, three, two one, zero.

5b. Underlining

We eat at McDonald's.
We heat the iron.
I work on the BP Machine.

The sign says 'Danger'.
I live in Alex City.
I work in a foundry.

The pattern number is 346036.
We heat the iron.
That Ford is parked outside Wal-Mart.

I work in the Quality Control Department.
I work in the EPS Department.
We eat fried chicken on July 4th.

You can't stop taxes.
Five, four, three, two one, zero.
I work on the Green Sand line.

McDonald's has a No Smoking Area.
It's OK to smoke in the parking lot.
That Ford has a V-8 engine.

I work at Robinson Foundry.
I work on the lost foam process.
The sign says 'STOP'.

The sign says 'U Street'.
You can't stop taxes.
Get an x-ray at the Alex City Hospital.

We eat Kentucky Fried Chicken on July 4th.
Run a core on this job.

6a. Fill-in-the-blank

I live in _____ _____.
I work on the ______ ______.
Run a ______ on this job.

The sign says ______.
I work in the ______ Department.
I work in a ______.

I work on the ______ ______ line.
We ______ the iron.
We heat the ______.

We eat fried chicken on ______ 4th.
We eat ______ ______ ______ on July 4th.
I work on the ______ ______ process.

We eat at ______.
McDonald's has a ______ _______ ______.
It's ______ to smoke in the parking lot.

The ______ number is 346036.
I work in the ______ ______ Department.
I work at ______ ______.

The sign says ______.
You can't stop ______.
The sign says ______ ______.

That Ford has a ______ _______.
That Ford is parked outside ______.
Get an ______ at the Alex City Hospital.

______ can't stop taxes.
Five, four, three, two one, ______.

6b. Fill-in-the-blank

We heat the ______.
I live in _____ _____.
I work in the ______ Department.

We eat at ______.
The sign says ______.
I work in a ______.

You can't stop ______.
We ______ the iron.
It's ______ to smoke in the parking lot.

I work on the ______ ______.
We eat fried chicken on ______ 4th.
I work in the ______ ______ Department.

I work on the ______ ______ process.
That Ford is parked outside ______.
Get an ______ at the Alex City Hospital.

McDonald's has a ______ _______ ______.
Run a ______ on this job.
The ______ number is 346036.

I work at ______ ______.
I work on the ______ ______ line.
The sign says ______.

The sign says ______ ______.
We eat ______ ______ ______ on July 4th.
That Ford has a ______ _______.

______ can't stop taxes.
Five, four, three, two one, ______.

7a. Narrative

1.

I live in Alex City and work at a foundry. Some of the departments at Robinson Foundry are the Green Sand line, EPS, and Quality Control. A sign says 'DANGER" near where we heat the iron.

The first job for the BP Machine today had a core in the mold. That job's pattern number was 346036.

2.

Five, four, three, two, one, zero.

3.

I live in Alex City on U Street. I drive a V-8 Ford. I work at Wal-Mart and eat at McDonald's and Kentucky Fried Chicken. Both places are OK to eat at.

I can read signs. The sign at the end of the street says 'STOP'. Signs at the Alex City hospital say 'No Smoking Area', and 'X-ray' machine.

4.

The year has these months in it: January, February, March, April, May, June, July, August, September, October, November, December. In January I file my taxes with the IRS. Then I have zero dollars left.

7.b Narrative fill-in-the-blank

1.

I live in _______ City and work at a foundry. Some of the departments at Robinson _____ are the Green _____ line, EPS, and Quality Control. A sign says _____ near where we heat the iron.

The first job for the BP _____ today had a core in the mold. That job's _____ number was 346036.

2.

Five, four, three, two, one, _____.

3.

I live in Alex City on U _____. I drive a _____ Ford. I work at Wal-______ and eat at McDonald's and ______ Fried Chicken. Both places are _____ to eat at.

I can _____ signs. The _____ at the end of the street says 'STOP'. Signs at the Alex _____ hospital say 'No _____ Area', and 'X-ray' machine.

4.

The year has these months in it: January, February, _____, April, May, June, _____, August, September, October, November, December. In January I file my _____ with the IRS. Then I have _____ dollars left.

7c. Narrative Multiple Choice

I

1. I live

   a. in Alex City.
   b. in Robinson Foundry.

2. I work

   a. at Alex City Hospital.
   b. at Robinson Foundry.

3. EPS

   a. is a department.
   b. is where we heat the iron.

4. The job's pattern number

   a. was 346222.
   b. was 346036

II

1. Five, four

   a. three
   b. zero

2. one + three =

   a. five
   b. four

III

1. I live

   a. in Alex City.
   b. in the machine.

2. I eat at

   a. Wal-Mart
   b. McDonald's

3. The sign at U Street says

   a. 'STOP'
   b. 'x-ray machine'

4. The sign at Alex City Hospital says
    a. 'DANGER'
    b. 'x-ray machine'

IV

1. January, February
    a. July
    b. March
2. I file my taxes with
    a. the IBM.
    b. the IRS.
3. October, November
    a. June
    b. December